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SOME EFFECTS OF VARYING LEARNING ENVIRONMENTS FOR LEARNING DISABLED CHILDREN

by

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ABSTRACT

The purpose of this study was twofold: to analyse the theoretical framework upon which the current practices in special education are based, and to compare the self-concept and achievement of learning disabled children who were receiving instruction in three differing environments: a group who were segregated in a special class, a group who received special education on a part-time basis and a group who received no special education.

The sample was made up of 92 Edmonton children, 72 of which had been identified as learning disabled by the school system in which they were in attendance and 20 who constituted a control group.

The Piers-Harris Children's Self-Concept Scale was administered for determining a global self-concept score and six cluster scores. Comprehension scores on two administrations of the Gates-MacGinitie Reading Tests were compared to determine reading achievement over a one year period. The Goodenough Draw-A-Man Test and Blischen Socio-Economic ratings were taken for the purpose of establishing group comparability.

While differences were found between the self-concept scores of the four sample groups, these differences were not statistically different. The data revealed the learning disabled children receiving special education to have more positive self-concepts than those who remained in regular classes for all instruction.

Over a one year period, more predictable achievement in reading comprehension occurred for the control group of non learning disabled students than in the other groups. Better overall achievement occurred within the part-time special education programme for learning disabled children.

The results of the study supported the currently popular arrangements used for learning disabled children. However, it was maintained that the basis upon which the practice is said to be based may be false and further research is necessary before any conclusions can be drawn as to the efficiency of one arrangement over another for learning disabled children.

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CHAPTER I

INTRODUCTION

What is often referred to as the integration/segregation controversy in special education centres around the question of whether it is preferable to segregate exceptional children into special classes or to integrate them into regular school programs.

This question as to the efficacy of the special class arrangement was first raised with regard to the educably mentally retarded (Dunn, 1968). A good deal of research has been conducted in an attempt to investigate the advantages of the special class vis-a-vis the regular class arrangement for educably mentally retarded (EMR) students. The results of this research are reviewed in a subsequent chapter; it will suffice here to say that these results justify the questioning as to the efficiency of the segregated special class as an educational arrangement for this group of students.

The controversy has since been extended: it presently is the efficacy of the special class *per se* that is questioned. This general questioning of the value of the special class, (for all types of exceptional students) however, is not rooted in a similarly sound research base to that for EMR children. The purpose of this study is twofold: first, it aims to critically appraise the theoretical foundation and basis in research of various classroom arrangements for exceptional children; second, it examines some effects of differing learning arrangements for one particular group of exceptional children - the learning disabled.

It is the contention of the author that the current questioning of the special class has been extended beyond what can be justified on the basis of the research conducted to date. Furthermore, it is argued that the present integrationist philosophy within the field of special education, as exemplified in the trend towards "mainstreaming," is effecting significant change in the type of administrative arrangements which schools now maintain for other than EMR children, particularly the children labelled "learning disabled." These children are being slotted into varying types of programs: some are segregated into special classes; others are integrated completely with regular pupils; still others are segregated on a part-time basis. Although the widespread changes continue to occur, there seems to be little basis in research for such change.

Chapter II outlines the controversy over the efficacy of the special class for EMR children and its extension to the value of the special class in general. The formulation of the questions to be researched in this study become obvious from the theoretical base outlined.

Chapter III begins with a review of the research conducted on the efficacy of special classes for EMR children, divided as to whether the results favour segregation or integration. Research on the special class arrangement for other exceptional children is then reviewed, followed by a review of studies on alternative classroom arrangements and a brief outline of other research which bears on the integration/segregation issue. The most relevant works in the literature on the self-concept are also discussed for the purpose of placing the data used in this study in context.

Chapter IV outlines the sample, instruments, procedures and statistical analyses utilized in the study. Terms used throughout the work are defined and questions as to methodology are addressed.

The results are outlined and statistical tables presented in Chapter V with a discussion of the results as they apply to past research and the present research questions following in Chapter VI. Chapter VI concludes with a brief statement regarding the relationship between research and practice in the field of special education.

The Problem

James Gallagher (1974) identifies three major categories of educational modifications which can be made to meet the needs of exceptional children: modifications in content, or what is taught; modifications in pedagogy, or how something is taught; and modifications in the learning environment, or where something is taught. It is virtually impossible to experimentally examine only one of these modifications, however, because of the degree of overlap which necessarily exists.

When a child's learning environment is changed it is often done for the purpose of exposing the child to an alternative type of curriculum, or to different teaching techniques, or even to a teacher whose teaching style or attitude is more in accordance with the child's needs. Consequently, unless one has the power to control for teacher values and attitudes, sociometric forces, curriculum content, and random placement of children in this or that classroom arrangement, it is difficult to conduct a pure study which researches only the effects of a single category of educational modification.

Notwithstanding the fact that one type of modification necessarily involves others, one could lable the current trend toward "maintreaming" as primarily an effort to modify the learning environment of exceptional children. Mainstreaming is the practice of providing that students in need of special services be integrated as much as possible within the regular school program. As such, it is but one type of change that has been chosen from a myriad of possible alternative changes.

Although it is a practice which is gradually being instituted in programs for different types of mildly-handicapped children, the major impact of the establishment of mainstreaming is on the learning disabled population. Because learning disabled children are also normal children (in that their intelligence, physical appearance and emotional stability are within the normal range) they are a group who can easily blend into the main school stream. Research into some of the effects of this particular type of learning environment on the learning disabled child as opposed to other types of learning environments is but another addition to the bodies of literature which have been amassed regarding the efficacy of the special class, and regarding the learning disabled child. Nevertheless it is research which must be undertaken in order that a data base can be built which will have a direct bearing on the decisions that are being made in the administration of special education.

This study sets out to investigate the effects upon the self-concept and achievement of learning disabled children in three types of classes in which such children currently receive their schooling.

Two general research questions are asked: Do learning disabled children's perceptions of themselves vary according to the type of learning environment in which they are placed? Do the achievement levels of learning disabled children vary according to the type of learning environment in which they are placed? In addition, attention is directed toward other factors which are demonstrated to be influential in determining the self-concepts or achievement of learning disabled children in the varying learning environments.

Data on the self-concept, achievement and intelligence level of 92 Edmonton children in four differing programs was compiled for the purpose of attempting to provide information regarding the above questions.

The area of research was chosen on the basis of the topical nature of the integration/segregation issue in special education. The group of exceptional children to be studied was selected because, although this is the group seemingly most affected by the current philosophy and trend in special education, the literature does not contain many efficacy studies of different learning environments for the learning disabled child.

In an era during which administrative arrangements are being drastically altered, research into the effects of such changes on the child's feelings about himself seem more than necessary. It was for this reason that the author made the decision to study the self-concept.

It was realized however that data regarding the self-concept would, by itself, add little to an evaluation of programs whose main purpose is not that of maintaining or improving self-concept. Vergason (1974) points out that the success of a program must be judged on the basis of how successful that program is in reaching its stated goals.

Although the goals of special education in this province have not been explicity set out, it is generally accepted that special education is an integral part of "the total educational enterprise" (Policy Statement of the Council for Exceptional Children, 1971), and as in all education must work primarily toward having children learn to their potential and secondarily, toward developing the child socially. It was for this reason that the achievement data have been incorporated into the study.

Scope of the Study

There are methodological problems inherent to a study of this nature, as is discussed in the chapter on methodology. Accordingly, it was undertaken with the knowledge that it would not be a study from which definitive conclusions could be drawn. Its purpose is exploratory.

Since it is an exploratory study, we realize that the data may not provide hard statistical proof. However, it is the concern of the author to find what occurs and exists for each group of students as much as to compare found differences between groups.

Owing to the present upsurge of interest in learning disabled children and the increasingly larger proportion of the 'educational dollar' being spent on special provisions for their education, it is felt that any study which might expose some effects of varying types of classroom arrangements on learning disabled children is valuable. It is hoped that, even if not statistically proven, the data will provide trends which will be informative.

It stands as a preliminary investigation; a descriptive, exploratory survey which may, if not answer questions, at least raise questions as to the efficacy of differing types of special administrative arrangements for learning disabled children.

CHAPTER II

THEORETICAL FRAMEWORK

> The first time anyone sorted anyone else may well have been when God looked at Adam and Eve and pronounced them "very good." But schools have picked up the task where God left off. From their first week in school until graduation day, schools separate the "very good" (or very bright) from normal students, and "special problem" children from everyone else. ...Part of the story of schools as "supersorter" has often been told. But retelling has not evoked notable change. And the plight of "special students" is largely unknown.
>
> \- Kirp (1973), p. 521.

Carlson (1964) categorizes school systems as the types of organizations in which there exists no control over the admission of clients and in which clients are forced to accept the service that is offered. The school's "adaptive response" to this inability to control the selection of pupils is its preferential treatment and segregation of pupils. In effect, the school creates its own "sorting mechanism."

All children are not created (nor grow to be) equal and all do not learn effectively in the same manner, at the same rate, nor in the same atmosphere. The existence of the field of special education is an admission of this fact. Its most constantly reiterated goal is that of "meeting the needs of children whose needs cannot be met in regular programs" (Christoplos and Renz, 1969, p. 371).

It was developed on the premise that no single teaching method can be the correct approach for all.

True to its purpose of meeting the needs of children whose needs are not being met in existing programs, special education has traditionally taken the exceptional child and placed him in a class with children having similar problems. The stated rationale for this practice is that these children are in need of specialized teaching methods and that their education must be oriented differently than that of the so-called "normal" school population (Iano, 1972).

Recently, however, the segregated special class arrangement has been challenged on the basis of there being little evidence that the students in these classes are benefiting from the experience of being so-placed, and that such segregation is "administrators' preference often masquerading as student benefit" (Kauppi, 1969, p. 394).

Although Dunn (1968) was not the first to question the validity of continued and increased use of self-contained special classes, and although he directed his criticisms to the practice of placing EMR pupils in these classes, it was his 1968 article, "Special Classes for the Mentally Retarded - Is Much of it Justifiable?", which spurred a massive reaction on the part of educators (Hammons, 1972). From the ensuing controversy over the worth of the special class there emerged a heated philosophical discussion over the purposes, values and practices of special education. As Britton (1971) describes it, special education had reached its Eriksonian "identity crisis" and had to face the concomitant "soul searching" and "seeking of self" which characterizes that stage of development (p. 78).

Although Dunn's (1968) evidential base was work carried out with EMR children and his criticism was of the continued establishment of self-contained special classes for this particular exceptional child, he stated that "much of what is said should also have relevance for those children we are labelling emotionally disturbed, perceptually impaired, brain injured and learning disordered" (p. 390). Accordingly, this controversy over the justification of special classes for the mentally retarded was expanded, becoming the controversy over the justification of special classes: period. A flurry of articles were written, a myriad of speeches were made and symposia (e.g. International Council for Exceptional Children, 1970) and books (Bradshaw, Langton and Patterson, 1972; Thurstone, 1959) were devoted to the issue. To the already impressive list of studies being conducted to test the efficiency of the special class came countless more, each claiming to include a new variable or to be more methodologically sound than its predecessors but all doing little else than making their individual contributions to the "inconclusiveness" of the research results (Lilly, 1970).

With few exceptions (Balow & Curtin, 1966; Pintner, 1943; Cutsforth, 1962; Meyerson, 1963; Ingram, 1965; Conner & Muldoon, 1967), the efficacy studies on the special class were studies comparing the academic and social success of educably mentally retarded children in special classes and in the regular grades. Specific results will be reviewed in Chapter III. It is sufficient at this point to state that the segregrated special class seemed to foster more favourable social development whereas the results in terms of achievement were less clear.

Following Dunn's (1968) lead, educators and politicians alike have taken the liberty to borrow from the results on a limited group of the special education population (i.e.. the educably mentally retarded) and apply them to special education as it exists for all types of exceptionalities.

> With the validity of special classes for the mildly mentally retarded being widely discussed, it seems appropriate to re-evaluate the purposes of all types of segregated classes for exceptional children on a philosophical as well as an empirical basis.
>
> - Christoplos & Renz (1969, p. 371).

A re-evaluation of the appropriateness of the segregated class for the educably mentally retarded can be made on a philosophical and an empirical basis: innumerable studies have been undertaken and results, even though often inconclusive and even contradictory, are available. But with far fewer investigations having been conducted for other areas of exceptionality, it seems doubtful that any more than a philosophical discussion can occur regarding the special class *per se*. From a philosophical and political perspective, it might be argued that the segregation of the exceptional child should stop as it is incompatible with a democratic ethos (Christoplos & Renz, 1969), but the research base which would be necessary for a more practical discussion simply is not available.

Formulation of Research Question

The significance of this paucity of research becomes most emphatic when it is considered in relation to recent developments in the field of special education. As the research and skills in preventative and rehabilitative medicine have improved, the number of physically and mentally disabled children requiring special educational services has decreased. At the same time, the increased precision of diagnostic tools and the sophisticated training available to psychological and educational personnel have allowed for the identification of a group of children variously referred to as perceptually handicapped, minimally brain dysfunctioned or learning disabled. Consequently the face of special education has changed: in the short span of some fifty years the field has changed from one which almost exclusively served the visually and auditorially handicapped and the mentally retarded to one which not only serves several groups of varying make-up, but to one in which the major portion of effort is directed to its learning disabled population.

The changes in the philosophy and practice of special education now taking place, then, are occurring within a field whose initial structure has been radically altered. The present trend toward "mainstreaming" is taking place at a time when the clientele being served by special education is of a very different nature than the clientele being served when special education's entire _raison d'etre_ was that of providing complete alternatives to regular school programs.

This trend toward mainstreaming is resulting in the disbandment of many segregated special classes, the establishment of many part-time special programs, the training and hiring of many itinerant and resource teachers, and the changing of the regular classroom environment to provide for more heterogenous groups of children. Considering that learning disabled children comprise the majority of the public school's special education population, this means that special classes _for learning disabled children_ are being disbanded, that part-time programs for _learning disabled children_ are being established, that itinerant and resource teachers _for learning disabled_ children are being trained and hired, and that the regular classroom atmosphere is being altered to provide _for learning disabled children_.

As has been pointed out, the research base for these wide-spread changes is minimal (see Chapter III). What is known about the efficacy of special as opposed to regular classes has been gleened almost entirely from studies involving EMR subjects. Efficacy studies utilizing a resource room or part-time special program (Sabatino, 1971; Weiner, 1969; Ainsworth, 1959; Carroll, 1967) are rare, although those involving learning disabled samples (Sabatino, 1971; Weiner, 1969) found the Resource Room to be a "desirable" placement for this type of student. The current discussion of abolishing special classes per se draws what is often considered to be an empirical base from research on one type of exceptional child (EMR) and at one level (the special class vs. the regular class or the Resource Room vs. the regular class). Two very blatant criticisms must be noted: alternative programs are not evaluated; and the research is not occurring at the level of the other exceptionalities to whom the discussion relates.

At a time when special education served two or three exceptionalities and used but one method of service, there was little scope for comparative evaluation. The rapid growth of the field in terms of clientele, practitioners and researchers now provides the opportunity of carrying out just such an evaluation. Now that special education is serving a wide range of exceptional children through a variety of means, comparative evaluation of different types of programs and their effects on different types of children is possible.

The trend toward mainstreaming reflects the feeling among special educators that the appropriateness of an educational grouping into which a child is placed will have a marked effect on both the academic and social progress of the child. To criticize such on the basis of the fact that a 'feeling' about the goodness of a practice is not sufficient rationale for instituting a practice is to overlook the history of special education. We remain aware that much educational innovation does not always grow from a research base (Lilly, 1973, p. 211).

Coupling our knowledge of the fact that the establishment of segregated classes for exceptional children was not based on a body of research which demonstrated the merits of small-class homogeneous groupings, with our awareness of the current dissatisfaction with segregated classes, we can modestly propose that more comparative research and program evaluation should be carried out before more widespread modifications are undertaken. It would seem that the theoretical base for and the mechanics necessary for this kind of research are present at this point in time. We contend that they should be utilized.

CHAPTER III

REVIEW OF LITERATURE

It is the purpose of this chapter to detail the type of research and the results of the research conducted to date which appear to have some bearing on the problem at hand. It is hoped that several points will become clear:

a) that the majority of the literature on the efficacy of the special class deals with the special versus regular class for _EMR_ _children_;

b) that the results, even for the EMR population, are not conclusive;

c) that, for the EMR population, the results warrant a search for more efficient alternatives to either full time regular or segregated special class placement;

d) that there is little research to substantiate the use of regular or special class placement for any group of exceptional children other than EMRs.

e) that more research seems necessary; and

f) that self-concept data serves as an important supplement to achievement data in educational research.

For the puprose of clarifying these points, research in several areas is reviewed. Although the review is not exhaustive, an attempt has been made to discuss the most salient and pertinent works.

The research which directly led to the formulation of this study was that literature which examined the efficacy of the special class versus the regular class for EMR children. A sampling of the relatively few studies which dealt with the special/regular class issue in populations of exceptional children other than EMR's is also reviewed.

The review then extends to cover several studies which examined the efficacy of alternative class arrangements such as partially integrated programs and goes on to cite research relevant to the integration/segregation issue. A review of the most salient works in the literature on the self-concept and its measurement is also incorporated. However, since achievement literature is subsumed throughout the entire review, the use of achievement data seemed well-substantiated without a separate review of achievement data and testing being undertaken.

Studies Relating to the Feelings and Social Adjustment of EMR Children in Regular and Special Classes

Much of the research into the social consequences of special class placement for EMRs has been based on the hypothesis that placement in a segregated environment leads to feelings of rejection at being removed from contact with the general school or class population (Meyerowitz, 1962; Smart & Wilton, 1974). Other studies (Mayer, 1966; Muller & Itkin, 1961) however, are rooted in the postulation that feelings of adequacy and acceptance can only be fostered in a special class where children are among intellectual peers. A sampling of the many studies reveals evidence supporting each of these views. The weight of the findings as to which classroom arrangement serves self-concept or social adjustment more adequately, however, points in favour of segregated special class placement.

Findings Favouring Special Classes. As part of a study carried out by Thurstone (1959), Jordan attempted to compare the personal and social relations of special and regular class EMRs. Using sociograms, he found EMRs attending the same class as children of average intellect to be socially segregated whereas EMRs within segregated special classes were accepting of each other. On the basis of a teacher rating scale created for the purpose of the study, he discovered the special class retardates to be more acceptable to their peers, to participate more in learning and social activities, to think more highly of their abilities and to be better adjusted emotionally than their counterparts in regular classes. There were no differences in the degree of happiness or obedience of rules observed between the two groups.

Mullen and Itkin (1961) completed a four year study of educationally handicapped children in the Chicago public schools. To evaluate behaviour and adjustment they used teacher reports in conjunction with pupil performance on the Thematic Appreciation Test and the Michigan Picture Test.

Over two years, no significant differences were found in overall adjustment between EMRs in regular and special classes.

However, over one year, Mullen and Itkin's regular class group made significantly greater gains on the Gross Productivity Scale of the Michigan Picture Test. Over two years, the mean Hostility scale score for the special class group of EMRs decreased drastically while remaining unchanged among EMRs in regular classes. On the basis of pooled data from sociometric interviews and these projective personality tests, the authors concluded that the emotional climate in special classrooms had a "salutary effect" upon adjustment in EMR children.

Cassidy and Stanton (1959), Ainsworth (1959) and Elenbogen (1957) each found their special class EMRs to be better socially adjusted than those in their samples who attended regular classes. In what is generally considered to be the most methodologically sound of these efficacy studies, Goldstein, Moss and Jordan (1965) also reported similar results.

Kern and Pfaeffle (1962) expressed their criticism of studies such as those of Cassidy and Stanton (1959), Jordan (1959), Mullen and Itkin (1961), Elenbogen (1957) and Ainsworth (1959) which base their findings on results from teacher report scales. They pointed out that teachers of special and regular classes necessarily make their judgements from different frames of reference and that the results are, therefore, incommensurable. Mullen and Itkin admitted that this might bias their results but also posited the equally plausible explanation that special class placement may actually foster adjustment by freeing the child from the pressures of competition with average intellect classmates and by allowing him better rapport because of the smaller teacher-pupil ratio in the special class.

Although Kern and Pfaeffle also recognized deficiences in their own instrument (the Social Adjustment section of the elementary form of the California Achievement Test), they suggested that it at least provides a more objective analysis than does the teacher report.

Their research took a slightly different 'tack' than its predecessors in that the study included a group of EMRs who attended a special school, as well as a group of special class-in-regular school and a regular class group. Their findings indicated that the retardates in the two special set-ups were better adjusted than those who attended regular classes. Although the difference was not significant, it was also reported that the special school Ss had higher social adjustment scores than did the special class Ss. The greatest difference between groups occurred on the School Relations subtest of the test but the authors conjectured that other areas would become affected as time in the regular class lengthened.

Using the Columbia Classroom Social Distance Scale and the Davidson-Lang Checklist of Thirty-Five Trait Names, Bacher (1965) separately measured self-concept and social adjustment for his regular and special class EMRs. He discovered no significant differences in self-concept but found the special class pupils to be better adjusted socially and to be more accepting of and acceptable to their peers.

The Michigan State Self-Concept-of-Ability Scale (Brookover _et_. _al_., 1967) was administered by Towne and Joiner (1966) on two occasions to EMR children prior to special class placement and four times during the first year of placement. They reported that the scores on the Scale dropped immediately after the children were placed in the special class, but that 89% of their subjects demonstrated a positive orientation by the end of the first year.

In subsequent phases of this study, Schurr, Towne and Joiner (1972) reported that self-concept-of-ability scores continued to improve during the second year of special class placement, while scores on the scale decreased for the seven students who had been reassigned to a regular class after one year of special class placement. The researchers felt that their use of a specific type of self-conception (self-concept-of-ability) allowed them to more efficiently question the validity of the argument that the poor academic achievement found to occur in special classes was related to negative views of their ability. They concluded that it was not.

The distinction between results obtained on self-report and teacher-report instruments is significant. If one is truly interested in a student's feelings about his class, it would seem that a teacher-report scale is less valid than a student-report instrument. It raises the important question of whether we are more interested in assumptions held by educators or how the child perceives both his learning environment and his own place in it.

It is to this question that Schurr, Towne and Joiner's study of a specific area of self-concept addresses itself. Assumptions may be found wanting when more sophisticated testing reveals more detailed information regarding children's perceptions of their situation.

Findings Favouring the Integration of EMRs into Regular Classes. Meyerowitz's (1962) comparison of the self-concepts of special and regular class retardates and of normal control subjects in Grade One revealed that, as a group, EMRs had more negative self-concepts than did average intellect children and that special class retardates were more self-derogatory than regular class retardates.

Mayer (1966) used the Piers-Harris Children's Self-

Concept Scale in his study of junior-high level EMRs. His findings refuted his hypothesis that the self-concepts of EMRs placed in special classes early in their school careers were more positive than those of EMRs placed in special classes later in their school years. It was concluded that regular class placement did not have the damaging effects which researchers have considered it to have.

Smart and Wilton (1974) proposed that more direct measures of social behaviour were necessary in order to ascertain real differences in the social behaviour of regular and special class retardates. Using the Partner Scale of Social Participation (Partner and Newhalls, 1943) they were able to determine the degree of children's participation on the school playground. The special class group had significantly lower social participation scores than the EMR pupils who were awaiting special class placement but who, at the time of the study, were attending regular classes. They reported that the play of the EMR children followed a different pattern than that of the average intellect children while the play of the regular class EMRs conformed more closely to this group. The authors interpreted these results as suggesting that the special class may be detrimental to the social adjustment of the EMR child.

It is rare for researchers to make such strong statements as that of Smart and Wilton. Due to the poor controls available in this type of study and the usual small sample size, most researchers state little beyond the fact that the results of their research indicate that one or the other placement offers "few if any" advantages. It is only, in fact, the consistency of research results which allow conclusions to be drawn.

The findings favouring integration are rather insubstantial when compared with those on the other side of the controversy.

With the evidence favouring segregation in special classes the question arises as to why the trend has been toward integration into regular streams. One must assume that the evidence lies with what has been discovered regarding academic achievement in the two settings.

Studies Relating to Academic Achievement of EMR Children in Regular and Special Classes

It is the case that studies comparing the academic achievement of mentally retarded children attending segregated special classes and those attending regular classes have almost consistently revealed greater academic achievement within the regular class groupings.

Studies Favouring Regular Class Placement. Bennett (1932) and Pertsch (1936) conducted two of the few studies undertaken prior to 1950. Each compared a group of segregated special class EMRs with a matched group of EMRs attending regular classes and found that the achievement in the special class group was lower than that in the regular class group. Thurstone (1959) and Cassidy and Stanton (1959) reported similar findings.

Mullen and Itkin, in a more expanded study (1961) used several measures in evaluating the academic progress of their special and regular class EMRs. Over a one year period the only significant difference between the achievement of the two groups occurred in the area of arithmetic, the regular class group having made a larger gain.

It should be noted that Thurstone (1959) was hesitant about his findings that a sample of EMR children in regular classes achieved more than did a special class sample. He suggested that his special class and regular class samples were not similar, in that available special education facilities were limited and allowed that only the lowest achieving EMRs be placed in special classes. He also excused them by pointing out that academic achievement may not be stressed in the special class setting to the extent that it is in the regular class.

Over the one year period of his study, Thurstone found that regular and special class Ss whose IQ fell in the 50-59 range achieved significantly less than the EMR students in similar placements who were of higher intellectual ability. He interpreted this to suggest that duller EMRs may benefit more from special class placement than brighter EMRs. Pointing to the fact that the differences in achievement between older retardates in regular and special classes was not as significant as that between younger students, he cautiously positid that special education classes for EMRs might be more effective with older than with younger students.

Although Cassidy and Stanton (1959) found their regular class EMRs to have superior academic achievement, they also pointed out that even the achievement of the regular class group was "modest" when compared to that of normal children of comparable mental ages. Ainsworth (1959) and Thurstone (1959) each made similar observations on the basis of their samples. Blatt (1958), however, reported that his sample of EMRs (70 attending special classes and 50 in regular classes) were making greater academic achievement than could be expected on the basis of their mental ages. The difference in findings is reflective of the controversy surrounding current methods of education for mentally retarded children.

Studies Which do not Favour Integration into Regular Classes. It is the study of Goldstein, Moss and Jordan (1965) which is generally considered to be the most methodologically sound of the efficacy studies on the special class conducted to date. Not only were the authors able to randomly distribute students to special and regular class groups, but they actually established their special classes where none had previously existed. Variables such as teacher technique, teacher qualifications and instructional methods, which other experimenters have found impossible to control, were all controlled in the design of this extensive study.

Over a four year period, Goldstein, Moss and Jordan found only slight differences in specific areas of achievement. The slight superiority in overall achievement of the regular class group was offset by the fact that it was those of the regular class with IQ's above 80 who accounted for the higher achievement while the below 80 IQ group made greater gains in the special class arrangement. These results are interpreted by the authors as suggesting that special classes for EMR children should be confined to those having IQ's below 80.

The EMR classification is currently restricted to persons haveing IQ's at least below 85, but generally below 70, (Heber, 1959) and school systems generally adhere to this restriction. Accordingly, the results of the Goldstein, Moss and Jordan study can be said to support the use of segregated special classes for EMR children in terms of allowing for greater gains in academic achievement.

Bacher's (1965) comparison of reading scores achieved on two administrations of the Stanford Achievement Test did not reveal any significant differences in reading growth over a one year period between samples of regular and special class EMRs. Blatt's (1958) finding of no differences in academic achievement between regular and special class groups was also in contrast to the findings of most researchers.

Methodological idiosyncracies cannot be easily overcome in studying already existing programs. Individual authors are demonstrating their thoroughness in pointing out that the methodological inadequacies of their designs call their results into question. However, with so many studies revealing similar results, despite imperfect and incomparable designs, there is reason to believe that the findings reflect the true state of affairs.

The fact that the researchers are so consistent in their attempts to 'explain away' their findings on the basis of these methodological difficulties could be interpreted as suggesting that they do not believe in what they are finding. Coupling this fact with the results of the much heralded Goldstein, Moss and Jordan study and others which found no differences leads one to question whether the evidence so overwhelmingly supports the contention that academic achievement is greater in regular class placements. Educational policy-makers seem much more ready to believe in and capitalize upon the findings than do the researchers themselves.

Studies on the Efficacy of Special Classes for Other Exceptional Children

The great majority of research into the question of the efficacy of special class placement has used EMR Ss and the results of those studies have been reviewed. A sampling of the relatively few studies which have researched this question for other exceptional students will now be reviewed.

Goldberg and Passow (1962) studied the effects on achievement of ability groupings for gifted children. They concluded that, "the variations in achievement were influenced more strongly by teacher and group differences in individual classrooms than they were by ability range, position, or even the intellectual ability range of the pupils" (p. 487).

Balow and Curtin (1966) compared the achievement of students in three ability groups (IQ 100-122; 123-141; and 132-181) against a heterogeneous group containing pupils of the complete IQ range. Pointing to the extreme variability within groups over ten achievement areas, they inferred that grouping gifted students is not practical in terms of creating greater homegeneity of achievement. They do not state that special classes for bright students should not be used, but merely that the results of their study suggest that they cannot be justified on the basis that they provide for greater homogeneity of achievement. This is the rationale usually stated in support of grouping by ability.

In one of the very few longitudinal studies carried out in the field of specific learning disabilities, Koppitz (1971) followed the progress of 177 pupils who were between the ages of 6 and 12 when initially placed in special classes. Her finding that many pupils exhibited an initial spurt in academic achievement following their placement in special classes was attributed to the relaxing effect of the special class environment which allowed the child to work to his potential. The gradual leveling off in achievement was explained as merely reflecting the fact that the child had reached his optimal working level. Koppitz felt it essential that negative attitudes be changed before a child could benefit from the special class and found the program she evaluated as successful in so modifying attitudes.

Ingram (1965) compared the adult status of cerebral palsied individuals who, as children, had lived in metropolitan areas where they attended special schools, against that of those who attended regular schools due to the unavailability of special classes in the areas where they grew up. He found many more of the latter group to be in open and niche employment, interpreting that it is those who are segregated during their school years who are segregated in later life. Ingram argued that the CP child's attendance in segregated special classes diminished his chances for later adjustment and stated that special school or class placement should only be used "if all else fails."

Few conclusions can be drawn. Koppitz is the single author who is an adamant proponent of the necessity of segregation. Others do not take strong positions. However, the results of this research can be considered in relation to other studies relevant to the issue which are reviewed below.

Other Studies with EMR Children Relevant to the Integration/Segregation Issue

Rather than comparing special and regular class students, Johnson (1950) studied the status of EMRs in the regular grades in an area where no special classes existed. Based on the degree to which a child was accepted or rejected by his peers, Johnson labelled a child as a "star," an "isolate" or a "rejectee." Upon dividing the EMR students according to lower and higher IQs and the normal pupils according to whether they were "borderline" or "typical," he discovered that the acceptance scores of a group increased and the rejection scores decreased as the mean IQ for the group increased. Similarly, the percentage of "stars" increased and the percentage of "isolates" decreased with a mean IQ increase. Only the percentage of "rejectees" did not follow this trend with the highest percentage of "rejectees" being found in the higher IQ EMR group.

Johnson felt that the evidence indicated that the degree of isolation was dependent upon one's level of mental ability. However, when youngsters were asked on what basis they rejected EMRs, they invariably reported that it was because of unacceptable behavioural traits rather than because of their limited ability.

These results led Johnson and Kirk (1950) to question whether the school's emphasis on social adjustment was sufficient enough to produce feelings of acceptance in the EMR child. Accordingly, they conducted a similar study in a school noted for its stress on social adjustment. The results were not radically different: whereas 6% of the normal children were "stars," there were no "stars" among EMR children; 40% of normals were "isolates" compared to 66% of EMRs; and 4% of normals were "rejectees" while 43% of EMRs fell in this category. Also in agreement with the previously conducted study, the normal children who were interviewed stated that they rejected the EMRs because of behavioural traits they attributed to them. Coupling this anecdotal evidence with the evidence of trends according to level of intellect provided by test results, Johnson (1950) and Johnson and Kirk (1950) stated that they felt these unacceptable behaviours attributed to the EMR students were compensatory behaviours used by the EMRs to deal with the discrepancy between their intellectual capacity and what was demanded of them in the regular class.

On a hunch that, where special classes were available, it would be the least objectionable EMRs who remained in regular classes, Baldwin (1958) studied EMRs in regular grades. Against his expectations, he found that, according to the Ohio Social Acceptance Scale (Fordyce, 1946), 61.3% of the EMRs were placed in the fourth quartile position of social acceptance as opposed to 22.7% of the non-EMRs. Follow-up interviews revealed that it was the anti-social behaviour of the EMRs that was resented by both teachers and pupils. Baldwin, in agreement with Johnson and Kirk, felt that such behaviour represented a compensatory defence on the part of the EMRs to deal with their lack of mental ability in a situation where they felt inadequate.

Branching out from this demonstration of mentally retarded children facing social rejection in regular classes, Diggs (1964) attempted to induce their greater acceptance. Rejected and non-rejected EMRs were identified through sociometric questionnaires upon which evidence teachers were informed of their classes' social structures and given instruction on how they might change those structures. Diggs was unsuccessful in his attempt to induce acceptance but a trend in the expected direction was demonstrated. This seems to indicate that more research into the altering of the regular classroom structure to more suitably accommodate EMRs may be fruitful.

These studies, like those reviewed immediately above, provide little or no basis for the integration of EMRs into regular classes.

Studies with Other Exceptional Children Relevant to the Integration/Segregation Issue

In 1942 Pintner reported that it was only the more able of his sample of visually handicapped children who successfuly graduated from special to normal classes. On the basis of his extensive study of hearing impaired children, Meyerson (1963) suggested that the same was also true of acoustically handicapped studnets. The evidence for these groups is in keeping with Johnson's (1950) findings with EMRs that the more able (higher IQ) retardates were the more acceptable to regular class peers.

Meyerson also reported a study by Upshall (1929) in which a group of children attending day schools for the deaf were found to make greater academic gains than children in residential schools, suggesting that greater segregation might negatively affect achievement. To what extent these results were attributable to the effects of institutionalization could not be determined.

Only 17% of the 177 pupils studied by Koppitz (1971) returned successfully to regular classes. Their successful return was found to depend more on behaviour and attitudes than upon achievement. Koppitz concluded her study with strong statements about the necessity of self-contained special classes for learning disabled children.

Janet Leiberman (1968) placed 15 children who had been labelled learning disabled in a special class and distributed 15 similarly diagnosed children among four regular third grade classes. She found no significant differences between the special and regular class groups in reading achievement as evaluated through the use of the Metropolitan Readiness Test.

Heilizer (1962) found differences in the self-concept of normal, hard of hearing and orthopedically handicapped children, suggesting that it cannot be assumed that the development of self-concept proceeds in the same manner for all types of children.

Using the data collected from his 1950 study, Johnson analysed the social position of the superior children included in the sample. The trend that he had noted with increase in IQ continued upward so that those Ss who would be considered "gifted" were also the most accepted and least rejected group of Ss. Johnson had stated that his research with EMRs suggested that regular class placement was difficult for the EMR child. However, on the basis of this additional analysis of gifted Ss, he warned that "special classes for gifted children cannot be justified on the same basis as those for the mentally retarded" (p. 87). Such evidence leads one to question whether the same is not true for other exceptionalities.

It is interesting to note that studies with normal children also have some bearing on the integration/segregation issue in special education. Bateman (1962), for example, studied 117 normal children who had attended school with blind children and 117 similar Ss who had had no contact with the blind. Bateman interpreted the fact that the group of children who had known blind students were more positive in their appraisal of blind children's abilities to demonstrate that personal experience with the blind influences one's attitudes toward them. In view of the fact that the literature on the blind suggests that some of the adjustment problems experienced by the blind are due to a devaluation of their abilities by the sighted (Bateman), the results of this study seem to indicate that integration of blind children in regular schools and classes could contribute to their better adjustment.

Billings' (1963) finding that non-crippled children held unfavourable attitudes toward crippled children and that it was the normal children considered to be highly socially adjusted whose attitudes toward the handicapped were least favourable, suggests that integration of physically handicapped children might also be beneficial. Studies of attitudes toward interaction with children of differing handicaps may be worthy of investigation.

Although only a few studies have been reviewed, it is the case that literature on the efficacy of special classes for exceptional children other than EMRs is sparce. There simply is not sufficient data to allow conclusions to be drawn. It is not felt that those advocating the disbandment of special classes for all exceptional children are making their case on the basis of sound research.

Studies on Alternatives to the Special Class

> Arguments, pro or con about this or that special education structure are probably less meaningful than the exploration of the possible alternatives with which learning handicapped children might be served.
>
> \- Sabatino (1971, p. 92).

The wide range of research into the efficacy of the special versus the regular class for mildly mentally retarded children should be evident. With results of these revealing the superiority of neither, a search for alternatives is the natural direction in which research could be expected to go. Although the "special class as the primary or only instructional placement for exceptional children has become quite untenable" (Hammill and Wiederholt, 1972, p. 58), studies on alternative educational arrangements are only beginning to appear.

In a study more directly related to the present one, Sabatino (1971) evaluated academic achievement of learning disabled children attending two resource rooms for one-half hour or one hour daily and a self-contained special class. The greatest academic gains were made by students in the self-contained special class and by those who attended the resource room for one hour daily. Greater academic gains were made by Ss in each of the three experimental groups than by a group of learning disabled children in the regular school stream. Sabatino suggested, in contradistinction to the evidence for EMR children, that learning disabled children in regular class environments may not profit academically.

The greatest academic gain was in the area of reading comprehension, as measured by the Gilmore Reading Test, and occurred in the special class group. Since reading comprehension is so basic to all academic work, Sabatino interpreted this finding as providing support for the maintenance and establishment of self-contained special classes for learning disabled children.. Although his results could be interpreted as demonstrating that some learning disabled children need the total teaching structure of the self-contained class, Sabatino stated that the majority of the exceptional population can make gains in the part-time resource room structure. From a practical viewpoint, he notes that school systems are becoming less able to provide enough funding or space to enroll all learning disabled children in segregated classes, and that findings of his study are sufficiently positive to "support the exploratory utilization of resource rooms for children with learning disabilities" (p. 92).

This need to find alternatives to the costly special class motivated Weiner (1969) to study the resource room arrangement for learning disabled children. In an attempt to emphasize the program structure rather than the teaching technique, he assigned learning disabled children to four resource room teachers, each of whom used different approaches and methods. All groups made significant achievement improvements in the areas of reading, writing and spelling. Because no control group was included, it is not possible to determine how the resource room program compared to other arrangements, but it at least demonstrates that this is a type of program which aids rather than is detrimental to the achievement of learning disabled children.

Conner and Muldoon's (1967) report on a high school resource room which was established to help in the transition of emotionally disturbed adolescents from an institution to a regular school also noted positive results. Again, however, no comparison with other types of arrangements was attempted.

In a slight variation of the segregated versus integrated class studies, Carroll (1967) studied the self-concept and academic achievement of EMRs in segregated special classes and in partially segregated special classes. Caroll randomly distributed her Ss into the two types of classrooms. Using the Illinois Index of Self-Derogation (a scale which has been validated for use with retarded Ss), she found a very significant increase in self-derogations on the part of the segregated special class students over a three month period, and a very significant decrease in self-derogations within the partially segregated group. The latter group also made greater academic gains than did the segregated group.

The rationale used in support of partially segregated resource room-type programs for exceptional children is that they can provide a combination of the strengths of both the special and the regular class. Carroll's sample of this type of grouping did just that, making both academic and social gains. The results warrant further attention to be focused on this type of educational arrangement.

Ainsworth (1959) studied EMR children in special class programs, in regular classes, and in situations where special help was received from an itinerant special teacher. Although no significant differences were found between groups in educational achievement, fewer in the segregated special class groups failed to improve or had negative improvement over the one year period than in either of the other two groups. Ainsworth suggested that this indicated some advantage for the special class arrangement. Ainsworth concluded on a positive, though cautious, note stating that there were "...no contra-indications for the use of any of the administrative systems tested for adjusting to the needs of the mentally retarded" (p. 142).

Using a Social Adjustment Scale constructed for the purpose of the study, Flynn and Flynn (1970) did not find differences in the social adjustment of EMR students attending a part-time (45 minutes daily) special program and that of similar students attending regular classes full time. Regular class teachers, however, expressed their feeling that the special class stimulated the personal adjustment and the academic motivation and achievment of the EMR children, and both regular class and part-time special class students stated that they thought the special program helped students with their regular class work. On this basis, the special class was applauded. This raises questions as to the extent to which personal assumptions which are not substantiated by research carry weight in educational policy making.

The research reviewed previously seems to warrant the search for a more efficient type of program for EMR children. However, sufficient research into part-time programs is simply not available for conclusions to be drawn. There is little scope for justifying this particular alternative for EMRs on its proven utility. With even less research available for other exceptional students, a justification of programs for them seems even less tenable.

Literature Review of Self-Concept

"There is no question that there is a persistent relationship between the self and academic achievement" (Purkey, 1970, p. 23).

Self-concept is an important variable in education for several reasons: it is a good indicator of a student's mental health; it is an important determinant of the child's behaviour toward others; and it undergoes normal change and will change as a result of planned alteration (Oldroyd, 1971).

As a psychological construct, "self-concept" as such, is not tangible but exists as a mechanism through which one can think about the phenomenon. Labenne and Greene (1969) define it as "the person's total appraisal of his appearance, background and origins, abilities and resources, attitudes and feelings which cultivate as a directing force in behaviour" (p. 10).

Two facts about the construct are of importance to our discussion: that one will have developed a general self-appraisal sometime before middle childhood (Coopersmith, 1967); and that self-concept can be taught. These two facts direct us to the significance of self-concept in educational research; first, that the child carries his self-concept with him to school; and secondly, that "the school is a major contributing agent to the malleable status of the child's conception of self" (Labenne and Greene, 1969, p. iv).

Mead stated that no matter how independent or isolated one considers himself, he always carries with him "the reflecting mirror of his social group" (Coopersmith, 1967, p. 31). For most of his school years, a child's main social group is his school class and it is this fact which esablishes the rationale for the study of self-concept of students in varying types of classes. Jersild (1952) and Sears and Sherman (1964) are among the many scholars who have emphasized the importance of self-concept to education.

Measurement of Self-Concept. Controversy still exists as to whether self-concept can be measured.

> Like all psychologists who deal with inferred variables, phenomenological personality theorists face many difficult problems defining terms and achieving appropriate, observable indicies for their construct. ...In addition, we must note that in some ways we face uniquely difficult problems in achieving valid measurement of the constructs of the phenomenologist.
>
> - Wylie (1961, p. 6).

The issue rests on whether or not self-report can be considered a true reflection of the phenomenal self. Wylie emphasized the studies pertaining to conscious self-concept which is often referred to as the "phenomenal self." Although the writer is aware that there is disagreement, each position will not be discussed. Regardless of the fact that few valid measuring techniques have as yet been constructed, the sheer breadth of the literature reporting attempts to measure self-concept is indicative of support for the belief that it can be tested.

Several of the studies in the area of social and personal adjustment reviewed above have specifically looked at self-concept (Towne and Joiner, 1966; Schurr, Towne and Joiner, 1972; Meyerowitz, 1962; Mayer, 1966; Bacher, 1965; Carroll, 1967). The instruments used to measure self-concept varied and this fact alone prevents conclusive comparison among results. Crowne and Stephens (1958) pointed out that it was this assumption of equivalence of assessment procedures which accounts for much of the failure in self-acceptance research. They, as well as Labenne and Greene (1969), suggested that research in the area has been prematurely interested in preliminary testing of hypotheses to the neglect of the development of adequate tests.

As Wylie's (1961) extensive research indicated, many instruments were developed for use in one or two studies but were often described incompletely or not at all. The reader was given no rationalization for the choice, no reliability estimates, and no source with which to follow up his research of the instrument.

The techniques generally employed in assessing self-concept include those involving self-report and those which rely on another individual's assessment of the S's self-concept (Oldroyd, 1971). Within the self-report category there are: Q-sorts and modifications thereof; check lists and rating scales; semantic differentials; inventories;

incomplete sentences; and various projective techniques. Rating scales and anecdotal records completed by teachers, parents or other significant persons in a child's life are often used in other-person assessments. As was pointed out above, some researchers (e.g. Kern and Pfaeffle, 1962) are very critical of teacher or other-person report techniques. There are, of course, many criticisms which might be directed toward the many self-report techniques as well (Crowne and Stephens, 1958; and Wylie, 1961).

Based on this information, the difficulty in selecting adequate research tools is apparent. After critical study, however, Mayer (1966) identified five scales which he felt were "good" surveys for use with children: Coopersmith's (1959) Self-Esteem Inventory and Self-Esteem Behaviour Rating Scale; Perkin's (1958) Q-sort technique; an instrument developed by Sears (1941); Lipsitt's (1958) Children's Self-Concept Scale; and Piers-Harris (1964) Self-Concept Scale. For reasons of economy and accessability, the Piers-Harris instrument was chosen for this study. While it is described in detail in Chapter IV, it should be pointed out that it has been tested for reliability with large numbers of children.

Wylie (1961) seemed both pessimistic and cautious in her evaluation of the state of self-concept measurement. After criticizing the available instruments, she stated that the worth of the results "...depends heavily upon the characteristics of the measuring instruments used" (p. 114) and concluded that "...the total accumulation of substantive findings is disappointing, especially in proportion to the great amount of effort which obviously has been expended" (p. 317). Although Labenne and Greene (1969) acknowledged that the imprecise nature of the instruments demanded that results be used in a "guarded" manner, they were more encouraging:

> It is true that the techniques have not yet been perfected to a point where we can have perfect measurement. On the other hand this does not mean that nothing should be done until that point is reached.
>
> - (p. 117).

It is from this point that we must depart, aware that our results must be critically analysed and that conclusions may not be generalizable, but confident that we have chosen from among the best.

CHAPTER IV

METHODOLOGY

The study sample consisted of 92 learning disabled Ss representing four sample groups: a segregated special class for learning disabled children, a part-time program for learning disabled children, identified learning disabled children who were not receiving any special help, and a control group of non-learning disabled regular class children.

Measures of self-concept, achievement, intelligence and socio-economic status were taken and the accumulated data used in evaluating whether differences in self-concept or achievement occurred for the different groups and in exploring contributing factors to any changes which did occur.

Explanation of Terms

Several terms used throughout the study have specific meanings which may be dissimilar to everyday usage. In order to make the discussion of methodological variables more readily interpretable, these definitions will first be clarified.

Learning Disabled. A learning disabled S was simply defined as one who was receiving or was slated to receive services for learning disabled pupils provided by the Edmonton Catholic School District. He had received an average score on either the Verbal or Performance Scales of the Wechsler Intelligence Scale for Children (Wechsler, 1949, 1974) or the Primary Mental Abilities Test, and was underachieving by approximately one third, based upon calculated achievement potential as determined by a sliding scale (Erikson, 1975). The calculating procedure is outlined in Appendix A.

No findings of this author which might have raised question as to their eligibility into the category resulted in the addition or deletion of any Ss.

LD is heretofore used to designate the term learning disabled.

Achievement. Used as a criterion for placement in programs for LD children by the Edmonton Catholic School District, achievement is defined according to calculated achievement potential as determined by the results of the Wide Range Achievement Test and the Gates-MacGinitie Reading Test in conjunction with intelligence data (see Appendix A).

When in reference to results of this study, achievement is defined according to the results of the Comprehension section fo the Gates-MacGinitie Reading Test only. As such it can be considered as scholastic achievement in one subject area (reading).

Learning Centre. A Learning Centre is described by the Edmonton Catholic School District as "an intensive full-time remedial program" which offers "a highly structured, individualized program utilizing a variety of instructional techniques" (1975, p. i). The criteria for placement in a Learning Centre will be outlined when the sample is described.

Further reference to the Learning Centre will be as LC.

Resource Room. The Resource Room referred to in this study is that program created by the Edmonton Catholic School District to provide part-time remedial help to LD students who otherwise attend regular classes. Students generally attend the Resource Room daily for periods of from one-half hour to one and one-half hours, either individually or in small groups of up to seven. The sample description includes a discussion of the criteria for placement in the Resource Room.

The Resource Room will hereafter be referred to as RR.

The Sample

An initial sample of 94 pupils (69 males, 25 females, ranging in age from 7 years 3 months to 12 years 3 months) was drawn up with the help of Special Services personnel of the Edmonton Catholic School District. Each pupil represented one of four groups which are described below.

The final sample sizes for the various measures differed. The Gates-MacGinitie Reading Achievement scores were available for only 71 (50 males, 21 females) of the total sample. Self-concept and IQ scores were available for 92 (67 males, 25 females) Ss. The original sample of 94 was reduced to 92 due to the impossibility of scoring data in two cases.

Group 1. Segregated Special Class Pupils (LCLD). The Ss consituting this group were 26 pupils (22 males and 4 females) attending three LCs. Self-concept and intelligence data was available for the entire sample of 26 whereas achievement data was available for 14 pupils (13 male, 1 female). They were drawn from the population of students within the Edmonton Catholic School District attending LCs (N≈90). The criteria for placement in a LC is average or above average intelligence and an achievement rate approximately one-third that expected on the basis of intellectual potential.

The students ranged in age from 7 years 5 months to 12 years 3 months (see Table 1). The length of time that students had been enrolled in the special class ranged from 4 months to 2 years, while none have received special help beyond the regular classroom prior to their admittance into the LC. A few of the Ss participated in physical education with other classes but otherwise all remained in the LC for all instruction.

Group 2. Integrated Special Class Pupils (RRLD). This group consisted of 23 pupils (17 male and 6 female) attending three RRs. Achievement data were available for 21 members (15 male and 6 female) with self-concept and intelligence scores available for the total group. They were drawn from the population of all students attending RRs in the school district (N ≃ 900). The criteria of placement in a RR were average or above average intelligence and an achievement rate approximately one-third that expected on the basis of intellectual potential (see Appendix A).

Table 1

AGE AND GRADE RANGE OF SAMPLE FOR EACH OF THE FOUR GROUPS

Ages

Groups	7yr-7yr 11 mon	8yr-8yr 11 mon	9yr-9yr 11 mon	10yr-10yr 11 mon	11yr-11yr 11 mon	12yr and up	Totals
1. LCLD	4	11	2	5	2	2	26
2. RRLD	4	5	1	5	4	4	23
3. WLLD	5	0	9	6	2	1	23
4. ND[1]	0	0	14	6	0	0	20
Totals	13	16	26	22	8	7	

Grades

Group	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Totals
1. LCLD	- Grading not relevant in this group -					
2. RRLD	6	2	1	8	6	23
3. WLLD	6	2	8	7	0	23
4. ND	0	0	20	0	0	20
Totals	12	4	29	15	6	

[1] Explanation of Short Forms:

LCLD - Learning Centre Learning Disabled Group
RRLD - Resource Room Learning Disabled Group
WLLD - Waiting List Learning Disabled Group
ND - Non Disabled (Control) Group

Those comprising this group ranged in age from 7 years 3 months to 12 years 2 months (see Table 1) and from Grades 2 to 5. Each had attended a RR for at least four months but for less than one year. Attendance in the RR ranged from one-half hour four times per week to one hour daily.

While it should be noted that the stated criteria for placement in both the RR and the LC are identical (Edmonton Catholic School District, 1975, 1976), and therefore facilitate some degree of comparability between the two groups, there appears to be a greater propensity to place the more severely handicapped students in the LC environment. However, because differing types of classes are not available in all districts, placement in one or the other program often is made on this criteria.

Group 3. Regular Class Learning Disabled Children (WLLD). This group consisted of 23 pupils (17 males, 6 females) attending four regular classes in three schools within the Edmonton Catholic School District. The sample for which achievement data was available was 20 pupils (15 male and 5 female). They were drawn from the population of pupils who were on waiting lists to receive remedial assistance in the following school year.

All pupils in this group had been assessed by Special Services personnel as meeting the criteria for RR or LC placement. However, due to their young age, or the absence of a program in their area, they had not yet been placed in a specialized program. If any remedial instruction was being conducted it was done at the discretion of the regular class teacher within the regular classroom.

Those in this group ranged in age from 7 years to 12 years 1 month and in grades from two to six (see Table 1). None had received special education previously and all were unaware that they would be receiving it in the future.

Group 4. *Non-Disabled Pupils*. This group consisted of 20 students (11 male and 9 female) in a single grade four class in the Edmonton Catholic School District. Achievement data was available for 16 members (8 males and 8 females). This sample was drawn from the population of grade four pupils, since the mean age of the other sample groups most closely corresponded with the mean age of Grade four pupils.

In order that this group constituted a real control group, it was necessary to ensure that no members of the class were being removed at any time for special help, nor would any be removed in the following year. Because of the extent to which special services were available, a class in which no students were receiving special help was rare. In essence, then, while the sample was drawn from the entire population of Grade 4 pupils, ($N \gtrsim 2,236$) it could not be predicted how many classes there might be that met this specific criterion. The *S*s ranged in age from 9 years 5 months to 10 years 4 months. None had previously received special education services.

Research Instruments

There were two main research instruments employed in collecting the data for this study: a self-report self-concept inventory, the Piers-Harris Children's Self-Concept Scale (Piers and Harris, 1969) and a series of reading achievement tests, the Gates-MacGinitie Reading Tests (Gates and MacGinitie, 1969). A non-verbal measure of intelligence, the Goodenough Draw-a-Man Test was utilized mainly for purposes of comparison (Goodenough, 1926). A fourth measure, The Blishen Socio-Economic Index for Occupations in Canada (Blishen, 1967) was also used in order to check the homogeneity of the samples regarding socio-ecomic status.

The Piers-Harris Children's Self-Concept Scale (The Way I Feel About Myself). This is a self-report inventory developed by Ellen V. Piers and Dale B. Harris (1969) and published by Counsellor Recordings and Tests. The scale consists of 80 declarative statements to which Ss respond by circling Yes or No to indicate whether or not they consider the statement to be true of them.

Scoring of the scale yields a global self-concept score, indicative of the Ss' general view of himself and six cluster scores, "behaviour," "intellectual and school status," "physical appearance and attributes," "anxiety," "popularity," and "happiness and satisfaction."

Reliability data obtained from the original standardization study indicated Kuder-Richardson Formula 21 correlation coefficients ranging from .78 to .93. The scale has also been judged to have adequate temporal stability, with test-retest reliability coefficients on one-half the standardization sample of .72, .71 and .72.

The manual indicates the necessity of a grade three reading level for group administration in which _S_s read and answer the questions on their own but suggests reading the statements aloud even for grades four and five students. In order that differing reading levels (ranging from approximately grade one to nine) would not affect the obtained scores, statements were read aloud to all _S_s in this study.

The Gates-MacGinitie Reading Tests. This is a series of reading achievement tests designed for use throughout grades one to twelve. The levels and forms administered included Primary A, Form 1; Primary B, Form 2; Primary C, Form 2; and Reading Survey D, Forms 1, 2, and 3 depending on the _S_s' grade level or general achievement level. One test in the series is administered routinely to all students within the Edmonton Catholic School District in June of each year. The forms to be administered at each grade level is standardized throughout the Edmonton Catholic School District. Within the non-graded LCS, the test level is determined individually, taking the student's capabilities into account.

Scoring yields standard scores, grade scores and percentiles in both Vocabulary and Comprehension. In accordance with the authors' recommendation that the Comprehension scores are more expertly used for the purpose of averaging and comparing, all computations were made on the Comprehension scores. The Edmonton Catholic School District files only grade scores. The utilization of these grade scores in pointing to trends was suitable to the purpose of this descriptive, exploratory study.

The authors report split half reliability coefficients of .88 to .96 for different levels of the test. The tests are widely used throughout school populations.

The Goodenough Draw-A-Man Test. This test provides a means of scoring the content of children's drawings to determine IQ. As a non-verbal intelligence test, it is generally considered to be less-anxiety producing and more culturally fair than more traditional verbal intelligence measures. This, and the brevity of administration, were the primary factors for choosing the test for use in this study. It was desirable that a single measure was available for the purpose of establishing comparability of groups.

Goodenough reported split-scale reliability coefficients of .77 for ages 5-10 taken separately. A correlation of .941 is reported between the Stanford Binet IQ and the drawing IQ. This fact seemed to support the use of the Goodenough IQ for a study of a descriptive nature such as this one. Williams' (1970) findings of no significant differences on the Goodenough-Harris revision between performance by impulsive and reflective children, suggested that the test is not biased against learning disabled children, many of whom exhibit concomitant perceptual handicaps.

The pencil drawings used in this study were obtained during the months of May and June, 1975 with the mental ages and corresponding IQs being determined according to Goodenough's (1926) criteria. A total of 51 points can be assigned, a score of either one or zero being accorded on the basis of whether specific elements are or are not included in the drawings.

The Blishen Socio-Economic Index for Occupations in Canada. This is an index which determines the social standing of households according to rankings of 320 occupations in terms of the educational and income characteristics of persons occupying those positions. The actual scale used in this study was outlined by Blishen in 1967, a revised edition of his 1958 system.

For this study, the scale was used solely to determine the degree of homogeneity of the four groups studied. The fact that it required the single piece of data, (occupation of family head) made it a preferable index, as did its high validity. Blishen reported a coefficient of multiple correlation of .919 with the Pineo-Porter ratings.

The occupation of the S's family head was solicited and that occupation assigned a scale score (with a possible range of 25.36 for trappers and hunters to 76.69 for chemical engineers). The degree of homogeneity between scores could then be established. It should be noted that an effort had been made in choosing Ss that they attended schools in neighbourhoods of comparable socio-economic status.

Testing Conditions

This examiner administered the Piers-Harris Children's Self-Concept Scale and the Draw-A-Man Test.

In order to make testing inobtrusive to the normal classroom routine, the size of the groups combined for test administration was determined by the size of the groups normally assembled for classroom instruction.

Where whole class instruction was the norm (e.g. in two LCs), testing was conducted within the entire class. Where small group instruction was the norm (e.g. in two RRs) testing took place with small groups of from two to four. In the case of the RRs, Ss were tested with the other pupils with whom they normally attended the RR and at the normal time of day of their RR visits. All members of the control group were tested at one time in their classroom. Classroom disruptions were unavoidable in the case of the WL group. While it would have been preferable to administer the test battery within the regular classroom to both Ss and other pupils, practical considerations required that WL Ss be segregated from their respective classes and tested in groups of approximately 11.

Teachers were given the choice as to whether they remained in the classroom during testing, their decision to be based on whether they felt their presence would influence the responses of the students. Five teachers (two of the three LC, two of the three RR, and that of the control group) were present during testing.

It should be noted that all Ss were assured that their individual results and responses would remain strictly confidential. They were told that the overall results concerning "children in Edmonton schools" would be the only information relayed back to their schools.

The Piers-Harris Children's Self-Concept Scale was administered initially, followed by The Draw-A-Man Test. A short break was allowed between the two administrations. The Self-Concept Scale was read orally, students circling their responses after each statement was read. Completion of the test took between 15 and 20 minutes. Students were allowed as much time as they desired to complete the Draw-A-Man Test, which usually ranged between 5 and 20 minutes.

Collection of Other Data

Gates-MacGinite Reading Test Scores. Grade scores on

Comprehension Sections of the 1974 and 1975 administrations of the Gates-MacGinitie Reading Tests were obtained from the files of the Edmonton Catholic School District.

Background Information. When the schools had such information on file, each individual school was able to supply the following:

a) occupation of family head;

b) length of time S had been receiving special assistance.

Other information solicited where applicable was:

a) length of time S had been receiving special assistance in the present setting;

b) length of time S spent in special setting.

Analysis of Data

Data obtained from the self-concept measure were analysed through analyses of variance and Pearson product moment correlation coefficients. The grade scores obtained on the achievement tests were ranked and nonparametric statisitical techniques were employed in exposing trends in the data. Correlations were computed to determine interdependence of the various measurements.

Self-Concept Measure. Piers-Harris Children's Self-Concept Scales (in consumable book form) were hand scored to obtain an overall self-concept score and six cluster scores, as described in the test description. This scoring involved adding the Yes and No answers according to a key constructed by the authors. According to this key, items are scored in the direction of a positive self-concept so that a high score indicates an adequate self-concept. For instance, a high score on the intellectual and school status cluster indicates a positive self-concept in this dimension and a high score on the anxiety cluster indicates that the S does not view himself as being highly anxious. Accordingly, a higher overall score is indicative of a relatively positive self-concept.

One-way analyses of variance were computed to test the significance of differences on the mean scores obtained by the members of the four groups on the general scale and its clusters. Further analyses were computed to determine whether differences existed according to school, class or sex.

Intelligence Measure. Hand scoring of individual drawings was completed according to Goodenough's (1926) technique.

Pearson product moment correlation coefficients were determined between the IQ as established through this measure and the scores obtained on the self-concept measure.

Achievement Measure. Rank ordering was employed to test the significance of the differences between group scores on the Gates-MacGinitie Tests. Spearman rank order correlations were computed to reflect the degree of correspondence between the June 1974 and June 1975 scores. The significance of the difference between coefficients could be made once 'r' scores were converted to 'z' (standard) scores (Edwards, 1967, p. 245).

The use of rank order data and of correlations allowed general conclusions to be drawn as to the steadiness or predictability of achievement.

Methodological Difficulties

Blishen Socio-Economic Index. Since studies in the area of mental retardation have often attested to the fact that a disproportionate number of children attending special classes are of low socio-economic status (Dunn, 1968; Franks, 1971), it was important that an index of socio-economic status was included in this study to establish homogeneity between groups.

However, a great difficulty was incurred in obtaining the occupation of the family head required for ratings on the Blishen Index. Whereas schools at one time routinely kept this information available on students, this is no longer always the case. Several schools at which *Ss* of this study were in attendance did not approve of soliciting such information. To solicit the information on behalf of this study was, in essence, to contravene the school philosophy of not requiring this. Accordingly, the information was only obtained where it was readily available: either from school records or when verbally provided by the principal. Because this piece of information was only available for a partial segment of the group, it was required that an estimate of socio-economic status be made on the basis of those cases where the information was available. The smallest number of ratings available for any one group was eight. Therefore, an estimate of socio-economic status was made. Using random numbers tables, a sample of eight ratings was drawn from the remaining groups. The analysis of variance, etc. was computed on the basis of the compiled 32 ratings.

The determined homogeneity of variance demonstrated that the groups were similar. Two other facts point in favour of the comparability of the groups: that the schools from which Ss were obtained were chosen with similar socio-economic status in mind in that the housing, etc. in the neighbourhoods were comparable; and that the range of scores obtained for the eight cases used in each sample covered the entire range of ratings obtained. These factors allow one to feel comfortable in assuming that SES was not a factor affecting results obtained in the study. Whether this occurred because of careful selection of Ss or because disproportionate numbers of low SES Ss do not fall in the learning disabled special classes as they are thought to do in the segregated special class for EMRs cannot be determined. Franks (1971) and Grotberg (1970) did not find lopsided groupings.

Analysis of Achievement Measures. The Edmonton Catholic School District records only the grade scores obtained on the Gates-MacGinitie Reading Tests. Because they are not based on equal interval scales, these grade scores are not easily or accurately amenable to statistical analysis. The desirability of using standard scores, based on an equal interval scale is recognized. However, the data were utilized in the most efficient means possible in order that trends in the data could be exposed.

The tentativeness of any conclusions which can be drawn on the basis of non-parametric statistics is acknowledged, as is the desirability of having been able to use standard scores. However, the purpose remains clear: to provide a balance of academic data to supplement the social (self-concept) results.

It was the steadiness or predictability of achievement which was of most interest to this study. In comparing groups for the purpose of educational decision making it was felt the primary interest should be placed on overall achievement. It seemed that whether large gains occurred for 5% of the sample should be less important than if 90% of the sample made substantial gains. It is just this steadiness which the ranked data illuminated.

The ranked data are affected, however, when differences in range occur. Much more interchange of ranked positions tends to occur when the range of scores is small. This results in many changes in rank and will make the correlation coefficient smaller. A large range of scores would allow more chance for slight loss or large gains to occur without concomitant changes in rank. This disadvantage notwithstanding, the use of ranked data appeared to be the only suitable method available.

Piers-Harris Children's Self-Concept Scale. The limitations of self-report instruments are acknowledged. However, adequate reliability and validity statistics for the Piers-Harris Scale suggests that it is one of the most appropriate instruments of its kind available for use with children of the age used in this sample. Although norms have not yet been established for "special" groups, Piers and Harris report results of two studies which found special group means within the normal range and encourage further use with special groups (Mayer, 1965; Gorlow, Butler and Guthrie, 1963).

The fact that the measure was administered on a single occasion precluded any evaluation of whether discovered differences resulted from the treatments under investigation or whether they might have been present previously. The fact that researchers (Mullen and Itkin, 1961; Towne and Joiner, 1966) have reported changes over time also suggests that pre and post testing would have been beneficial. Subsequent researchers would be well advised to design their studies to incorporate such long-term testing.

Testing Conditions. The varying testing conditions have been outlined above. It is sincerely felt that, despite the variation, the conditions were comparable and not affective to the obtained results.

RR Attendance. Some difficulty is experienced in discussing findings which occurred in the RR because of the fact that students attend the RR for such a small proportion of each school day. Testing of self-concept was completed in the RRs under the premise that how a child felt about himself was, partially related to the time and place in which he was asked how he felt. However, much of their self-feelings as well as their achievement was greatly influenced by the time spent outside the RR in the regular classroom.

Conclusions about groups are drawn, based on the premise that the feelings about self may change as a result of the fact that the child is removed from his regular class when instruction in those subjects where he is least competent is conducted and that the testing occurred in the RR during the time and with the group that the child routinely received instruction.

CHAPTER V

RESULTS

The presentation of findings is divided according to whether the results relate to self-concept or to achievement. Data on the self-concept were of primary interest, as reflected in the fact that the greater number of analyses were computed for the self-concept measure. The data on achievement, however, represent an important supplement to the self-concept data.

It should be noted again that the data related to achievement are representative of 71 Ss while all other data is representative of 92 Ss.

Reference is made to tables throughout the text. These tables appear in Appendix B.

The probability value required for significance is .05 for all statistical tests unless otherwise indicated.

Summary of Results

Although statistically significant differences were not found, data revealed more positive self-concepts for LD Ss who received remedial assistance than those who did not. The term, trend, will be used for such data.

Achievement was demonstrated to be more predictable within the control sample than for any of the LD groups but steadier overall achievement occurred for more Ss within the part-time remedial program.

1. The self-concepts of three groups of learning disabled Ss, each within a different learning environment, were not found to be different from each other or from those of a control group of children who were not learning disabled.

2. There was a trend in the direction of the fact that LD Ss receiving special assistance had better self-concepts than LD Ss who were not receiving specialized assistance of any kind.

3. Learning disabled children who were segregated full-time in special classes perceived themselves to be significantly more anxious than did regular class non-disabled pupils.

4. Significant differences were not found in the anxiety levels of the three groups of LD Ss. The demonstrated trend was for there to be a higher anxiety level within the segregated setting.

5. No group of Ss viewed themselves as having greater or lesser behaviour problems or as having higher or lower intellectual and school status. The trend was for regular class LDs to have the most negative feelings about their intellectual and school status, the partially segregated group to be in the middle and the segregated group to possess the most positive orientation. Such a trend was not evidenced for the behaviour dimension, where differences

in scores were negligible. Although each LD group saw themselves as having poorer behaviour than the normal Ss, the partially segregated group perceived their behaviour most positively, followed by the segregated special class group and finally the regular class LD group.

6. Differences in overall self-concept were not evident across either school or class lines.

7. There were differences in Ss' perceptions of certain aspects of self-concept along class and school lines. Differences in anxiety level occurred between members of various schools. In addition, differences occurred between members of various classes in their feelings about their intellectual and school status and physical appearance.

8. Sex differences in overall self-concept were not evidenced. However, the perception of male Ss on the physical appearance and attributes dimension of the Self-Concept Scale was more positive than that of females.

9. No significant correlations were demonstrated between IQ and self-concept.

10. Significant differences in achievement occurred between the segregated special class sample and the control group, predictability being higher within the control group.

11. A trend in the data showed achievement to be more predictable for the regular class LDs and partially segregated Ld Ss than for the special class LDs. However, these

differences were not significant.

12. Predictability of achievement was better for female LD Ss within the regular class and partially segregated classes.

13. Raw data revealed that the steadiest, overall progress occurred for the partially segregated LD sample.

Self-Concept Measure

A one-way analysis of variance was computed to test for any significant differences between the mean scores obtained by members of the four sample groups on the Piers-Harris Children's Self-Concept Scale. Table 2 illustrates the results of that analysis, indicating no differences (F 0.82, (3, 88) = $p > .05$).

There was no evidence to suggest that overall self-concept varied according to the type of learning environment.

Table 3 shows the means and standard deviations for each of the four groups on the Piers-Harris Children's Self-Concept Scale.

Table 3

ARITHMETIC MEANS AND STANDARD DEVIATIONS FOR EACH OF THE FOUR GROUPS ON THE PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

Group	N	Mean Score[1]	Standard Deviation
LCLD	26	55.269	11.851
RRLD	23	56.304	13.861
WLLD	23	52.826	11.224
ND	20	58.900	14.754

[1] possible range of scores 0-80

The statistically insignificant results outlined in Table 2 precluded the conclusion that the differences in mean scores among groups could not have occurred by chance. The scores presented in Table 3, however, indicated that there was a trend among LDs toward more positive self-concepts for those LD Ss who were receiving special assistance (LCLD and RRLD).

A one-way analysis of variance was computed between the mean scores of the complete LD sample (groups 1, 2 and 3) and the non-disabled sample (group 4), on the self-concept scale. The results are presented in Table 4, indicating that the sample of LD children did not feel significantly different about themselves than did the sample of non-disabled children (F 1.59, (1, 90) = $p > .05$).

Table 5 shows the means obtained by the experimental groups on each of the six cluster scores derived from the Piers-Harris Scale.

Table 5

MEAN SCORES OF THE FOUR GROUPS ON THE SIX CLUSTER SCORES WITHIN THE PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

Group	B. Behaviour	I. Intellect	P_1. Phys. Appear.	A. Anxiety	P_2. Popularity	H. Happiness
LCLD	13.000	13.423	8.615	6.885	7.231	6.616
RRLD	14.130	12.478	7.609	7.435	7.609	7.522
WLLD	12.696	11.391	7.348	7.000	7.261	6.931
ND	14.150	12.550	7.300	8.850	7.200	7.700

Possible range for each variable: B. 0-18; I. 0-18; P_1. 0-12; A. 0-12; P_2. 0-12; H. 0-9

Any significant differences between scores in each of the six areas tapped by the clusters of the Piers-Harris Scale were demonstrated by the results of the one-way analysis of variance computed between the mean scores of the four groups on each of these six dimensions. These are outlined in Tables 6 to 10.

The probability values for each of the F values obtained on the dimensions of "behaviour," "intellectual and school status," "physical appearance," "popularity," and "happiness and satisfaction" suggested that the differences in mean scores may have occurred by chance. Because the similarity among means of the four groups on each of these dimensions, it was assumed that the groups did not feel significantly different regarding these self-attributes. The effect of the type of classroom arrangement upon children's perceptions of their behaviour, intellect, physical appearance, popularity and happiness was not significantly different. However, trends within the data attested to the fact that the differences on the happiness and satisfaction dimension were close to significance (F 2.01, (3, 88) $\underline{p} = 0.119$) while the least variation among groups occurred along the popularity dimension (F 0.12, (3, 88) $\underline{p} = 0.950$).

For the dimension of anxiety, the obtained probability (F 2.82, (3, 88) = $\underline{p} < .05$) indicated that the groups differed significantly in terms of their feelings about their own anxieties. The results of that analysis are presented in Table 11.

Results of an a posteriori Scheffé test between means on the anxiety dimension indicated that the control group (ND) felt significantly different about their anxieties than the segregated LD (LCLD) group. These findings are illustrated in Table 12. Members of the segregated LD group reported themselves to be significantly more anxious than did non-disabled Ss (see Table 5).

On only one dimension, that of "anxiety," was there a significant difference between means for members of different schools. The results of this analysis of mean scores on the anxiety dimension for members of different schools are presented in Table 13, indicating that there was an statistically significant difference between how the Ss of various schools perceived their level of anxiety (F 2.32, (6, 85) = $p < .05$).

On the dimensions of "Physical Appearance and Attributes" and "Intellectual and School Status," significant differences between means scores for members of varying classrooms were found. Physical Appearance and Attributes: (F 2.44, (7, 84) = $p < .05$; Intellectual and School Status: (F 2.83, (7, 84) = $p < .05$). The results were very close to significance for the "Anxiety" dimension (F 2.10, (8, 84) = $p = .05$). These results are presented in Tables 14, 15 and 16.

Real differences existed between how Ss of various classes perceived their physical appearance and attributes, and their intellectual and school status.

The fact that significant differences were found on certain dimensions when Ss were divided according to school and classroom suggests that groupings themselves, as opposed to types of groupings, may be influential in determining children's feelings about themselves. However, the lack of significant differences found on the overall self-concept scores indicated that neither school nor classroom alone were sufficiently influential to affect overall feelings about oneself.

One way analyses of variance computed on the mean scores for self-concept and its dimensions when Ss were divided by sex showed no significant differences except on the "Physical Appearance and Attributes" dimension of the scale. Table 17 presents the results of this analysis, indicating that male Ss perceived their physical appearance and attributes significantly more positively than did female Ss (F 4.94, (1, 90) = $p < .05$). The fact that no significant differences existed between the overall self-concept scores of males and females within the sample suggested that males and females did not react differently to the type of classroom arrangements under study, at least in their overall feelings about themselves.

Comparison of Self-Concept Data with Other Data

The correlation between the paired observations of IQ as established by the Draw-a-Man Test and Self-Concept Scores as established by the Piers-Harris Scale for members of each of the groups were as follows: LCLD, r = -0.092; RRLD r = 0.141; WLLD, r = -0.016; Non-Disabled, r = 0.073, none of which reached significance. The correlations were all low and those between paired observations within the two special class groups (LCLD and RRLD) were not even in the same direction. Children's views of themselves were not highly related to mental ability in any group.

Correlation coefficients computed between each dimension of the self-concept scale and IQ for each of the four groups revealed that the "Intellectual and School Status" Dimension was positively correlated with IQ for the non-disabled group (r = 0.031, not significant), but was negatively correlated for the three learning disabled groups (LCLD, r = -0.291; RRLD, r = -0.041; and WLLD, r = -0.085, none which were significant). There was little relationship between IQ and the perceptions of intellectual and school status held by the learning disabled Ss of this sample. In the case of the LC group, there was a trend suggesting that a good self-perception of one's intellectual status was negatively related to mental ability.

Dividing Ss according to high IQ (100 and above) and low IQ (below 100) revealed correlations between IQ and self-concept of r = .0045 (not significant) for the high IQ group (N = 44), and of r = 0.1779 (not significant) for the low IQ group (N = 48). The relationship between level of mental ability and self-concept in each case was positive but low and there was no indication of differences in self-concept according to level of ability.

Achievement Measure

Rank order correlation coefficients were computed for the purpose of comparing achievement gains (in reading comprehension) made by members of the four sample groups over the one year period from June 1974 to June 1975. Table 18 illustrates these findings .

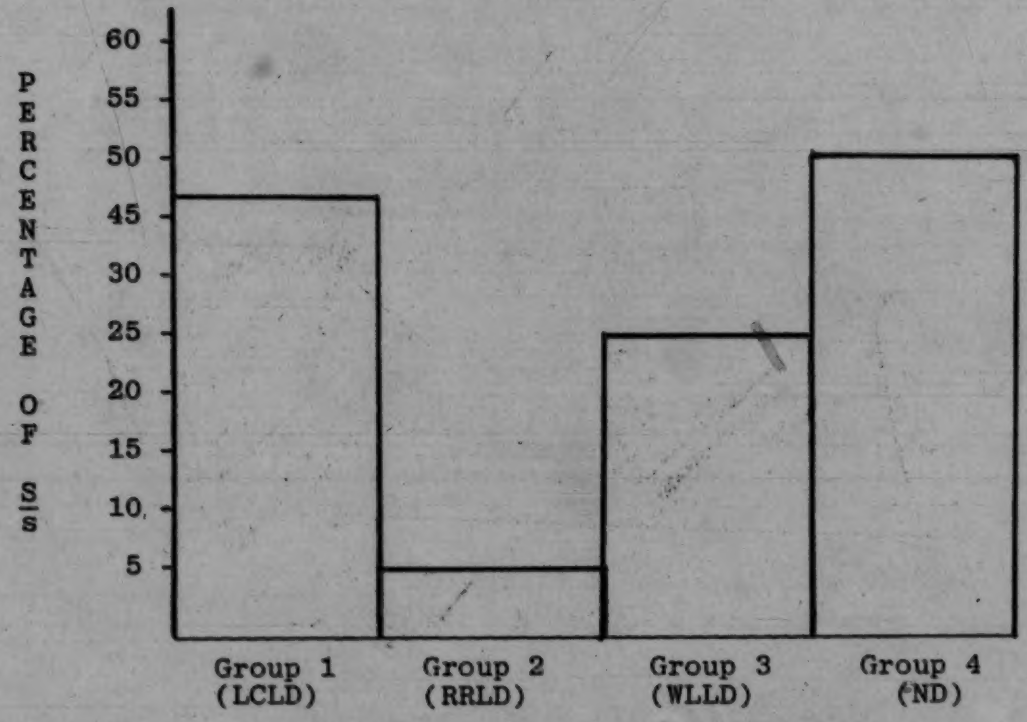
The relative standing of members of the segregated LD group did not correspond highly to their standing on the following year's test although the correlation was positive. However, the relative standing of members of the other two LD samples as well as the control sample corresponded highly for the two separate tests.

These results suggest that it could not be predicted how a child in an LC would achieve from one year to the next while it was possible to predict achievement for Ss of the other three classroom arrangements.

The raw scores revealed that for 42.86% of the LC group, the achievement scores achieved in June 1975 were the same or less than those attained in 1974. This decline occurred for only 4.76% of the RR group, for 25% of the WL group and 50% of the control group. These results are presented graphically in Figure 1.

Figure 1

ACHIEVEMENT FAILURE RATE OVER ONE YEAR PERIOD



The significance of the difference between obtained r values for the four groups over the one year period were computed through first translating the r values to z values and then dividing the difference between each set of two z values by the standard error of difference (Edwards, 1967). Table 19 outlines the results of this analysis. Only the difference in achievement rates between groups one (LCLD) and four (ND) (z -2.808, $p \angle .05$) was sufficiently large to warrant the assumption that the difference could not have occurred by chance.

Table 20 shows the Pearson Product Correlation Coefficients obtained for males and females within each of the groups and the significance of the differences between sexes in three of the groups. The significance of difference between scores for males and females in the LCLD group could not be determined since achievement data were available for only one of the four original female members of the sample. The results indicated that there were differences in the achievement rates of males and females within the RR and WL groups, there being better predictability within each group for the female Ss.

Table 21 illustrates the range of raw scores achieved on the 1974 and 1975 administrations of the Gates-MacGinitie Reading Achievement Tests. These will be useful for reference to the interpretations drawn in Chapter VI.

Table 21

RANGE OF RAW SCORES ACHIEVED ON SEPARATE ADMINISTRATIONS OF THE GATES-MacGINITIE READING ACHIEVEMENT TESTS

Group	1974 Scores	1975 Scores
1. LCLD	0 - 4.4	1.2 - 4.7
2. RRLD	1.3 - 6.0	2.1 - 6.2
3. WLLD	1.6 - 4.7	1.9 - 5.6
4. ND	1.7 - 7.0	3.3 - 9.3

Basic Comparability of Groups

Although not under consideration in this work, the following results are presented for the purpose of establishing the comparability of sample groups.

The scores obtained on the Goodenough Draw-A-Man Test ranged from 64 to 147. Table 22 outlines the range and mean IQ scores for each group.

Table 22

MEAN IQ RATINGS OBTAINED FOR ALL GROUPS USING THE GOODENOUGH DRAW-A-MAN TEST

Group	Mean IQ	Range of Scores
1. LCLD	101.231	71 - 146
2. RRLD	97.957	64 - 147
3. WLLD	103.696	66 - 139
4. ND	101.600	66 - 125

A one-way analysis of variance computed between the mean IQ's of each group showed that there were not significant differences. The results of that analysis are outlined in Table 23 (f 0.86, (3, 88) = $p > .05$). It can be assumed that the groups were comparable in range of mental ability as established by the Draw-A-Man Test.

The range of ratings obtained for the Blischen Index (where N = 32) was from 28.22 to 64.52. A check on the homogeneity of variance revealed a chi-square value of 0.6665 with an associated probability value of 0.8810. The results of the one-way analysis of variance computed for the Blishen ratings is presented in Table 24 (F 0.08, (3, 28) = $p > .05$). It can be assumed that the groups were similar in terms of SES.

CHAPTER VI

DISCUSSION

This chapter is intended to elaborate upon the findings of the study and to discuss those findings in relation to both the general findings of past research and to the current philosophy and practice in the administration of special education. A brief outline of encountered research problems is also presented.

Interpretation of Results

Comparability of Groups. Special classes for EMRs, more in the U.S. than elsewhere, have been attacked on the grounds that they discriminate against immigrant, black and disadvantaged groups. There is research which demonstrates that so-called "opportunity" classes contain disproportionate numbers of children from these groups (Franks, 1971; Dunn, 1968). It is contended that those children who best "fit" the system are placed in regular classes while those who do not fit the white, middle class norm and fare poorly on the culturally biased tests are banished to segregated classes.

Providing for comparability between groups, then, was important to establishing the credibility of this study.

The comparisons of IQ ratings and socio-economic status ratings obtained for the Ss in this study indicated that the separate groups of individuals were not different according to social class or intellectual ability. Their level of mental ability according to a non-verbal (and accordingly less culturally-biased or anxiety-producing) IQ test and their socio-economic levels were not disparate. As found by Grotberg (1970), those LD children placed in segregated special classes (or any other program) did not constitute a disproportionately high number of Ss whose ability or socio-economic status was low.

Although it was not possible to account for many of the variables along which groups might have differed, their similarily along these dimensions lent a certain sense of homogeneity to the samples under study.

Self-Concept. The self-concept scores of the LD Ss were not significantly more positive or negative than those of the non-disabled members of the sample. That this was the case is in contrast to the widely held notion that LD children have such poor self-concepts (Edmonton Catholic School District, 1975, 1976).

The self-concept scores of LD children in three differing types of learning environments (segregated special class, part-time special class and regular class) did not differ markedly. This finding is dissimilar to the weight of the evidence for EMR children which suggests that EMR children's feelings about themselves are greatly affected by the type of learning environment in which they are placed (Carroll, 1967). In this study, the debilatory effects so often attributed to either regular or special class placement were not in evidence. It presents agreement with Heilizer's (1962) suggestion that the development of self-concept may not be the same for different categories of exceptional children.

The trend for self-concept scores to be more positive for the LD students in the two "special" arrangements (LC and RR) than for the regular class LD's (WL), suggests that the type of learning environment did have certain effects. It can be conjectured that this trend might have been more pronounced had the Ss of each group been studied in their groups for a longer period of time. It suggests that LD children feel better about themselves when they are receiving special help. Whereas further experimentation over time periods is necessary before definitive conclusions can be drawn, the results can be interpreted as supporting the necessity of special education for the learning disabled.

Research findings with EMR Ss favoured segregated special class placement over regular class placement for the fostering of more adequate social adjustment and self-concepts. This has been interpreted as stemming from the fact that feelings of adequacy and acceptance can only be developed in a specialized setting where children compete among intellectual peers. This study's results demonstrated an advantage for LD children receiving specialized assistance, be it in a segregated setting or on a part-time withdrawal system. Although the reasons cannot be determined, it can be interpreted that having one's disabilities recognized and catered to aids the self-concept more than does being left to fend alone among more able peers.

Anxiety was the sole dimension of the Self-Concept Scale for which significant differences between groups were found. Segregated special class LD Ss were much more aware of feelings such as nervousness, fearfulness and shyness than were non-disabled Ss. That this occurred only for one of the three LD groups indicates that the LD Ss as a group did not perceive themselves as significantly more anxious than did the control group.

The demonstrated trend was for there to be a higher anxiety level in the segregated setting than in either the partially segregated or regular settings. For this sample of LD children, the special class setting did not offer the security that allowed feelings of anxiety or nervousness to be dispelled.

Advocates of the segregated special class (e.g. Koppitz) argue that the security of the special class provides the warm, friendly, non-threatening atmosphere that disabled children require in order to learn. The competition with more able peers required in the regular classroom is thought to be alleviated (Johnson, 1959). Proponents of the resource room feel that they have met the ideal: the pressure to be part of the regular school class group is lessened because children are not totally segregated, while the competition is lessened in the individual's particular area of difficulty through remedial help.

The results of this study showed the LD children in full attendance in a regular class and those receiving part-time RR help to be less anxious. There is no indication of anxiety being heightened to LDs whose classmates are not disabled. The trend was in favour of the part-time remedial help program.

Despite the atypical behaviour and learning patterns so often attributed to LD children (Clements, 1969; Gaddes, 1969), significant differences were not demonstrated between self perceived behaviour or intellectual and school status of the Ss participating in this study. If LD children are aware of the poor gross and fine motor control, emotional lability, hyperactivity and learning difficulties which they are said to possess, it could be expected to show up on these two dimensions of the Self-Concept Scale. Yet, whether differences in either behaviour or intellectual and school status existed, the Ss' perception of them did not differ significantly. The lack of differences between disabled and non-disabled Ss on these, and other dimensions, suggested that the LD child was not acutely aware of these problems.

However, the evidenced trend was for the segregated LDs to have the most positive and the regular class LDs the least positive feelings about their intellectual and school status and is in keeping with findings for EMR children. A similar interpretation to that expressed in the EMR literature may be employed: removed from the competition with children more capable of learning, children in special classes tend to view themselves as more capable. A climate of acceptance of weaknesses necessarily exists. Members of the WL group, being one of a few children with learning difficulties in a regular class may have been led to feeling a sense of being less intellectually endowed or less successful in school. Though present, the effect appeared less severe for those who were removed from the regular class on a part-time basis.

The trends, then, seem to support the postulation that the kind of environment in which one is asked to perform affects the feelings about school status. There were indications that performing among similarly disabled pupils resulted in more positive feelings about one's capabilities. It should be noted, however, that differences in perception between LDs and the normal group did not occur so that the case was not one of LDs feeling more or less capable than "normal" children.

That a similar trend did not occur and that the group scores were very similar on the behaviour dimension suggests that the type of learning environment did not affect feelings about behaviour to the same extent as it affected feelings about the more school-related area, intellectual and school status. That each LD group saw themselves as having more negative behaviour than the control Ss provides some credence to the contention that LD Ss may have had some awareness of the atypical behaviour attributed to them.

The differences which occurred between school and class groups along the dimension of anxiety, as was also the case for types of learning environments, suggests that this dimension of self-concept was more affected by the grouping in which one was placed than any of the other dimensions. It may be that feelings of anxiety are as readily affected by peer group, teacher attitude or style, or school philosophy as by the type of learning environment in which one receives instruction. That differences were demonstrated in the perception of physical appearance and attributes and intellectual and school status for members of different classes, suggest that other areas of self-concept may be affected by these same factors.

The question must also be raised as to the validity of the anxiety dimension of the Self-Concept Scale. Because it is the single cluster score alone which differences almost invariably occurred, one must ask whether the demonstrated effects occurred due to the instrument variable or real differences in anxiety. This is a very real possibility, owing to the tentative information available for the cluster scores of the Scale (Piers and Harris, 1969).

It is not within the scope of this paper to explore where or how such differences occurred. While it was possible to at least partially control for general mental ability and socio-economic status, it was not possible to control for variables such as school philosophy and teacher technique without being able to randomly assign Ss to various environments. With notable exceptions (Goldstein, Moss and Jordan, 1965; and Carroll, 1967) few researchers have been able to do so. One must question whether research results which support one kind of learning arrangement over another might have differed had Ss been divided along alternate lines. Weiner (1969) was the only author reviewed who accounted for this type of factor. A key word to our discussion must be that of "climate." It seems apparent that the climate of acceptance existing for the grouping in which a child receives his instruction may be as influential as the type of program.

Regardless of the question posed by the above findings, it must be noted that differences in overall self-concept were not evident. That this is the case suggests that marked differences in feelings about self were not occurring as a result of factors such as teacher technique or school philosophy anymore than because of differences in learning environments. Although specific areas were affected, the effect was not so great as to influence more general overall self-feelings.

The question of sex differences in self-concept was raised in order to determine whether different learning environments might produce differing effects for males and females. This was not found to be the case. That males perceived their physical appearance more positively than females probably had more to do with higher societal expectation for females to be physically attractive than with the type of learning environment in which they received instruction.

The fact that only very low correlations were established between IQ and self-concept suggests that how either LDs or non-LDs felt about themselves was not dependent on the level of mental ability. This was further substantiated by the low correlations established when Ss were divided into high and low IQ groups. It may be that the same factors which operate for EMR Ss may not operate for the learning disabled. Johnson (1950), Johnson and Kirk (1950) and Baldwin (1958) all reported results indicating that the least intellectually endowded of their EMR samples were the most socially isolated. If it can be assumed that self-concept is adversely affected by social isolation, for this study's sample of LD children, whose exceptionality has less to do with mental ability than with other problems, no similar trend was established. It may be that the same factors which operate for EMRs may not operate for LD children. This questions the applicability or results from EMR research to other exceptionalities.

That there was a negative correlation between LDs' perception of their intellectual and school status and IQ and a positive relation for control Ss merely suggests that the LDs, as a group, were different. No further conclusions can be drawn on the basis of these data. Only further research can establish along what lines there are differences in how LD children view themselves as opposed to normal and other exceptional children.

Achievement. Differences in achievement were evident between the segregated special class LD Ss and the non-disabled Ss. This leads to the conclusion that steady, predictable progress did not occur for all Ss within the LC group to the extent that it did within the control group. What occurred academically within the LC sample varied according to the individual; it was not as predictable as that which occurred in the control sample. The relatively larger range of scores for the control group (see Table 22) than for the LC group may partially explain this difference.

Differences did not occur in achievement among the three LD groups. This leads to the conclusion that no one of the three learning environments had proven more conducive to academic achievement over the one year period. That achievement of LD Ss within the RR and WL groups was more predictable than that within the LC group suggests that one must assume that the LDs sampled in this study did better academically when in partially segregated special classes or in regular grades than when segregated full-time.

Observance of the raw scores of the LD samples allows for more insight into the academic progress which occurred for each group. Almost 43% of the segregated special class (LC) and 25% of the regular class (WL) LD groups failed to show progress while this occurred for less than 5% of the partially-segregated (RR) group. It suggests that progress was occurring for a greater proportion of the RR group than for either of the other LD set-ups or even for the control group (where 50% failed to progress). It is the opinion of the writer that gains for a large majority of a sample speak more highly for the program than do large gains for a few individuals and no gains for others. In this view, the RR program allowed much superior results for its members than did any other program. Despite the lack of significant differences between the three LD samples according to computed analyses, the results seemed to suggest much better achievement for the partially-segregated group.

The above findings differ from those of Sabatino (1971) which revealed greater gains in reading comprehension for segregated special class LDs. It suggests that the results of various studies on LDs are not apt to be any less contradictory than those studies of EMRs. The results of this study on LDs specifically supported Carroll's (1967) findings that the partially segregated setting is most beneficial to the academic progress of EMRs, and generally supported the assumption within the entire field of special education that this middle-of-the-road (partially-segregated) placement is best (Christoplos and Renz, 1969; Dunn, 1968).

Analyzed results indicated that the academic progress of LD males and females differed, whereas this was not the case for non-disabled _Ss_. No artifact of data seem to explain this. That the differences occurred for the LD groups and not for the control group is as likely as not to do with the nature of learning disabilities. The reason for the greater proportion of males diagnosed as learning disabled is not yet understood. It suggests, however, that varying learning evnironments may affect boys and girls differently; a fact which few researchers have taken into account.

The results demonstrating a higher anxiety level among the segregated special class (LC) LDs raises some question as to the similarity of the sample groups.

It may, in fact, be this shy, fearful nervousness which contributes to the child's placement in the segregated setting: these feelings of anxiety may be what prompts an administrator's assumption that the child cannot "cope" with even part-time regular placement.

Few statistically significant findings were made in this study. It seems notable that two of those which were significant seem to tie together. The results of the cluster of self-concept scores indicated high anxiety levels among LD children attending segregated special classes. The achievement within that group was demonstrated to be the least predictable and steady. The relationship between academic achievement and self-concept is well established (Purkey, 1970; Labenne and Greene, 1969). The child's feelings about himself and his abilities have a strong influence upon his achievement level. It follows, then, that if the child is experiencing feelings of nervousness, shyness and fearfulness that he is not in a state most conducive to his best achievement. Much better achievement would be expected of the child who is less anxious and therefore better able to devote his energies toward the tasks set before him. A great deal of research remains to be done to determine the role played by climate of the classroom in determining both self-feelings and achievement.

Summary of Interpretations Bearing Upon Major Research Questions

The debilatory social effects so often attributed to one or another type of learning arrangement were not in evidence in this study of self-concept. However, the data suggested that more positive self-concepts existed for those LD children who received special assistance (either fully or partially segregated) than for those who did not. This is interpreted as supporting the necessity for LD children to receive specialized assistance if they are to maintain positive self-concepts.

A trend revealed that LDs in segregated special classes held more positive feelings about their capabilities than did LDs who did not receive special education. The feelings of those LDs receiving special education on a part-time basis were not as positive as those of the segregated group but were more so than of those who received no special assistance. Again, these results are interpreted as supporting the necessity for specialized assistance beyond the regular classroom and as substantiating that disabilities are more clearly emphasized in the regular classroom when no alternative support system is provided.

LD students attending segregated special classes perceived themselves as having higher levels of anxiety than any other group. Doubt is raised as to the security often thought to exist in the segregated class. Question is brought to bear as to the possible effect of segregated special class placement upon anxiety level and as to the possibility that it is the more anxious LDs who are placed in segregated classes.

Although no statistically significant differences were found, between LD groups, more substantial achievement occurred for LD Ss attending a part-time special class (RR) than within any other group. In addition, achievement was more predictable for LDs who did not attend the segregated special class. This is interpreted as demonstrating a definite advantage for the integrated approach, supporting present administrative practice but in contradistinction to much research.

Differences in self-perceptions on various aspects of self-concept occurred across school and class lines as well as across the groupings being compared for the purpose of this study. This, again, raises question as to whether it is the type of grouping or the climate of acceptance within the grouping which is the key to both self-feelings and the achievement which is so often dependent on those feelings.

No statistically significant differences occurred between the overall self-concept scores. Differences occurred between the reading achievement of control Ss and segregated special class Ss, but none between varying LD Ss. However, on the basis of trends and specific results of more specific analyses, some general conclusions can be drawn.

It must be concluded that fewer negative feelings about self occurred for the RR group and that overall performance in reading comprehension was higher for this same group. Although specific results must be analysed separately, the general trend throughout the results suggests superiority for this part-time special class program for LD children.

The general findings of the study, then, are supportive of the current practice in North America special education: that of providing remedial programing on a part-time withdrawal basis. It is a positive finding, allaying some of the doubt experienced by the author in observing the practice becoming so wide-spread without substantial research to support its implementation.

Further research, of course, is indicated and necessitated. However, the results of the present study must be viewed positively, indicating approval for present policy in the field of special education. That research, however, must carefully study the climate of the groupings which are under study in an effort to discern whether type of program can be compared as much as can climate of acceptance in a program.

Research Problems

Several of the research problems encountered might more readily be accounted for in a replication of the study. The relatively small population size from which the sample was drawn resulted in the difficulty in controlling for comparable lengths of time spent in special programs and meant that a broad age range was sampled. To have been able to sample larger numbers in smaller age ranges would have discounted the differences which age factors may have contributed to the results of this study. To have been able to control for the varying durations of time for which Ss received specialized help would have increased the validity of the results.

The Edmonton Catholic School District's use of a reading achievement test as one of its main standardized achievement measures seems to rest in the carry-over effect which reading has on other areas of achievement. The large proportion of reading disorders constituting learning disabilities was also a determinant in choosing a type of achievement measure most suitable for the population from which this sample was drawn.

However, the fact that a measure of reading achievement was used meant that the "achievement" results of the study referred only to a single area of achievement. Although, most researchers (Bacher, 1965; Cassidy and Stanton, 1959) have used only a single measure, any who have tapped varying achievement areas (Sabatino, 1971; Balow and Curtin, 1966) have found differing results. Again, whereas it was not within the scope of this study to test beyond the single area of reading achievement (since reading achievement seems to be the most suitable area), it would have been preferable to have compared achievement in various areas.

Pre and post testing of self-concept or at least a second measure over time would have been extremely valuable in determining the part played by treatment and by initial differences between groups.

Despite the inherent problems, the study was undertaken with a belief in the significance of studying what exists rather than what can be contrived to fit the laboratory mould. As Giorgi (1970) points out, "too often phenomena are studied more on the basis of the availability of methods than on how the phenomena appear and what they would require" (p.83).

To have been required to hold to the precision of the natural scientific approach would have meant a failure to study the relevant aspects of the question. In following strict scientific procedures, the study of Ss as they function in their normal learning environments would have had to be abandoned. To derive broad generalizations concerning phenomena as they might exist, and to do the same regarding phenomena as they are experienced are two different acts. The former has the advantage of being "pure" in the sense that the results achieved and the conclusions drawn from them are "correct." The corresponding disadvantage is that its data may not always reflect, nor its conclusions always fit, what exists in the real world. The latter has the disadvantage that its results, based as they often are in imprecisely controlled or collected data, are really unsubstantiated and therefore tentative. Its advantage, however tentative, is that the results directly relate to the conditions or facts as they are experienced by individuals in today's schools.

With the rapidity at which decisions in the area of special education are being made, it seemed that the relevancy of the latter gave the distinct advantage to that approach.

Several of the problems encountered are simply those encountered in a reality sample and not easily changed without concomitantly becoming obtrusive and changing to a more laboratory-oriented experiment.

Establishing comparable-size testing groups seemed less advisable than testing in groups and environments in which the children were normally grouped. However, it would have been preferable to test the WL group in as normal a setting.

Controlling sample sizes for equal numbers of males and females may have been more experimentally pure but would have denied the situation as it exists in reality, that being that a greater proportion of LD children are male. In fact, the single element which sould have improved this study along that line would have been to have comparable ratios within the four groups. This was a particular weakness in regard to the control group.

Selection of Ss through individual intelligence and achievement testing would have provided more satisfaction as to whether the Ss were truly learning disabled. Again, however, to do so would have been to negate the school's classification and the purpose of the study: to deal with the same children with whom the school deals.

Conclusions

A current trend now in practice in North American school systems is that of creating alternatives to the segregated special class for exceptional children. The most usual procedure for doing so is to place the child on the register of the regular class, having him receive parts of his instruction in that class while withdrawing him to a special class (e.g. resource room) to receive remedial instruction in certain subject areas. This practice is based on the assumption that the student gains more from this experience than from being segregated for his entire instructional day in a special class with similarly handicapped students. Based on a review of the literature, it is the author's opinion that this practice is more deeply rooted in a democratic notion of equality and in budgetary considerations than in any factual data on the superiority of the type of programming. And that such is the case is acceptable for two reasons: that where considerable literature exists (on EMRs) it does reveal a need for an alternative to the regular or the special class; and that societal values must surely affect educational policy. The unacceptability lies in the claim that the practice is "better" for the children. It seems questionable that such statements should be made without there being existing facts establishing that this is the case.

It is realized that monetary constraints necessitate that disabled children are afforded only part-time remedial help. It is evident that with both teacher and parent groups demanding that those exceptional children be provided with the specialized assistance they require, that school administrators take positions. But it is one thing to "sell" a program on its established merits and another to state that it is required because of monetary constraints.

As this practice of withdrawal special education or "mainstreaming" applies to the learning disabled, it changes the entire culture of the school. The difficulty experienced by this researcher in finding a control sample (i.e. a class from which no students were withdrawn for specialized programming) exemplifies the situation. Within a school there are few classes, if any, which are not affected by this trend, for there are few classes which do not have at least one pupil receiving remedial assistance on a withdrawal basis.

The facts have not been studied as they apply to the learning disabled in the same way that they have been studied for the EMR population. It was on this basis that this study questioned the acceptability of the mainstreaming practice. While acknowledging that there is no precedent for educational change to respond only to research results (Lilly, 1973) and that educational change will necessarily be in accord with societal values, there still seemed to be a gap. In an age of research sophistaication, it did not seem right that such widespread change would occur without simultaneous research into its desirability. That there was a "feeling" as to the worth of the program did not seem adequate. Since the same rationale was employed to explain its institution, it seemed as though it was being assumed that what was found for the educably mentally retarded also applied for learning disabled and other exceptional children.

This study was designed to compare the states of self-concept and levels of achievement of learning disabled pupils in three differing learning environments. While it has not begun to fill the gap, it has exposed certain facts as they exist for a single Edmonton sample. That the facts which were established support the current trend is heartening. That so many questions are left unanswered and so many more exposed, demands that more attention be directed to the topic.

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APPENDIX A

THE Z SCORE DISCREPANCY METHOD USED BY THE EDMONTON CATHOLIC SCHOOL DISTRICT TO IDENTIFY LEARNING DISABLED CHILDREN

The z score discrepancy method (Erikson, 1975) is purported to accurately identify children who are achieving below their potential. It is the formula used by the Pupil Personnel Services of the Edmonton Catholic School District in identifying LD children.

Two achievement measures are used: scores on Wide Range Achievement Test (Jastak and Jastak, 1965) and the Gates-MacGinitie Reading Test, and the level of achievement as determined by these scores is compared to the expected level of achievement as determined by scores on the Wechsler Intelligence Test for Children or the Primary Mental Abilities Test. The child achieving to potential is expected to obtain a z score on the achievement tests which is similar to his z score for IQ.

The Edmonton Catholic School District sets its own criteria for determining which children are designated learning disabled, according to norms established for the system.

APPENDIX B

TABLES OF ANALYSES DESCRIBED IN CHAPTER V

Tables Pertaining to Scores Obtained on the Piers-Harris Children's Self-Concept Scale

Table 2

ONE-WAY ANALYSIS OF VARIANCE ON SELF-CONCEPT MEAN SCORES OF MEMBERS OF THE FOUR GROUPS

Source	SS	MS	DF	F	P
Groups	408.00	136.02	3	0.82	0.488
Error	146.00	166.42	88	--	--

Table 4

ONE-WAY ANALYSIS OF VARIANCE OF SELF-CONCEPT MEAN SCORES OF COMBINED LEARNING DISABLED GROUPS VERSUS NON-DISABLED GROUP

Source	SS	MS	DF	F	P
Groups	261.00	160.69	1	1.59	0.211
Error	14800.00	164.36	90	--	--

*p = $<$ .05 unless otherwise indicated.

Table 6

ONE-WAY ANALYSIS OF VARIANCE OF GROUP MEAN SCORES ON THE BEHAVIOUR CLUSTER OF THE SELF-CONCEPT SCALE

Source	SS	MS	DF	F	P
Groups	38.8	12.93	3	1.06	0.369
Error	1070.	12.16	88	--	--

Table 7

ONE-WAY ANALYSIS OF VARIANCE OF GROUP MEAN SCORES ON THE INTELLECTUAL AND SCHOOL STATUS CLUSTER OF THE SELF-CONCEPT SCALE

Source	SS	MS	DF	F	P
Groups	50.5	16.82	3	0.94	0.427
Error	1580.	17.96	88	--	--

Table 8

ONE-WAY ANALYSIS OF VARIANCE OF GROUP MEAN SCORES ON THE PHYSICAL APPEARANCE AND ATTRIBUTES CLUSTER OF THE SELF-CONCEPT SCALE

Source	SS	MS	DF	F	P
Groups	27.7	9.23	3	0.94	0.423
Error	861.	9.78	88	--	--

Table 9

ONE-WAY ANALYSIS OF VARIANCE OF GROUP MEAN SCORES ON THE POPULARITY CLUSTER OF THE SELF-CONCEPT SCALE

Source	SS	MS	DF	F	P
Groups	2.49	0.82	3	0.12	0.950
Error	618.	7.02	88	--	--

Table 10

ONE-WAY ANALYSIS OF VARIANCE OF GROUP MEAN SCORES ON THE HAPPINESS AND SATISFACTION CLUSTER OF THE SELF-CONCEPT SCALE

Source	SS	MS	DF	F	P
Groups	18.0	5.98	3	2.01	0.119
Error	262.	2.98	88	--	--

Table 11

ONE-WAY ANALYSIS OF VARIANCE OF GROUP MEAN SCORES ON THE ANXIETY CLUSTER OF THE SELF-CONCEPT SCALE

Source	SS	MS	DF	F	P
Groups	52.1	17.37	3	2.82	0.044*
Error	543.	6.17	88	--	--

Table 12

PROBABILITY MATRIX FOR SCHEFFE MULTIPLE COMPARISON OF GROUP MEANS ON THE ANXIETY DIMENSION OF THE SELF-CONCEPT SCALE

Groups	1.	2.	3.	4.
1.	1.0000	.8964	.9989	0.0770*
2.	.8964	.9989	.9496	0.3305
3.	.9989	.9496	1.0000	0.1230
4.	.0770*	.3305	.1230	1.0000

*p = 0.10 is significant

Table 13

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES ON THE ANXIETY DIMENSION OF THE SELF-CONCEPT SCALE FOR MEMBERS OF DIFFERENT SCHOOLS

Source	SS	MS	DF	F	P
Groups	83.0	13.83	6	2.30	0.042*
Error	512.	6.02	85	--	--

Table 14

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES ON THE ANXIETY DIMENSION OF THE SELF-CONCEPT SCALE FOR MEMBERS OF DIFFERENT CLASSROOMS

Source	SS	MS	DF	F	P
Groups	88.754	12.68	7	2.10	0.052
Error	506.203	6.03	84	--	--

Table 15

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES ON THE PHYSICAL APPEARANCE AND ATTRIBUTES DIMENSION OF THE SELF-CONCEPT SCALE FOR MEMBERS OF DIFFERENT CLASSROOMS

Source	SS	MS	DF	F	P
Groups	150.414	21.49	7	2.44	0.025*
Error	738.328	8.79	84	--	--

Table 16

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES ON THE INTELLECTUAL AND SCHOOL STATUS DIMENSION OF THE SELF-CONCEPT SCALE FOR MEMBERS OF DIFFERENT CLASSROOMS

Source	SS	MS	DF	F	P
Groups	311.250	44.46	7	2.83	0.011*
Error	1319.742	15.71	84	--	--

Table 17

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES ON THE PHYSICAL APPEARANCE DIMENSION OF THE SELF-CONCEPT SCALE FOR MALES AND FEMALES AND ATTRIBUTES

Source	SS	MS	DF	F	P
Groups	46.2617	46.26	1	4.94	0.029*
Error	842.4805	9.36	90	--	--

Tables Pertaining to Scores Obtained on the Comprehension Section of the Gates-MacGinitie Reading Tests

Table 18

CORRELATION COEFEICIENTS COMPUTED BETWEEN JUNE 1974 AND JUNE 1975 SCORES ON THE GATES-MacGINITIE READING TESTS

Group	r
LCLD	.291
RRLD	.896*
WLLD	.752*
ND	.892*

Table 19

TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN GROUPS IN ACHIEVEMENT GAINS

Differences between:	z value	p
1. (LCLD) and 2. (RRLD)	- .905	.342
1. (LCLD) and 3. (WLLD)	- 1.731	.084
1. (LCLD) and 4. (ND)	- 2.808	.004 *
2. (RRLD) and 3. (WLLD)	1.428	.153
2. (RRLD) and 4. (ND)	0.069	.944
3. (WLLD) and 4. (ND)	- 1.244	.215

Table 20

TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN SEXES IN ACHIEVEMENT GAINS

Group	Male N	Female N	'r' male	'r' female	dif.
1. LCLD	13	1	0.13	1	--
2. RRLD	15	6	0.747	- 0.957	- 14.438*
3. WLLD	15	5	0.476	- 0.963	- 1.965*
4. ND	8	8	0.738	0.461	.717

Tables for IQ and SES Ratings

Table 23

ONE-WAY ANALYSIS OF VARIANCE OF IQ SCORES ESTABLISHED BY THE DRAW-A-MAN TEST OBTAINED BY MEMBERS OF THE FOUR GROUPS

Source	SS	MS	DF	F	P
Groups	50.5	16.83	3	.86	0.428
Error	1719,5	19.54	88	--	--

Table 24

ONE-WAY ANALYSIS OF VARIANCE COMPUTED FOR BLISCHEN SOCIO-ECONOMIC RATINGS FOR MEMBERS OF THE FOUR GROUPS

Source	SS	MS	DF	F	P
Groups	0.314	10.45	3	.08	0.968
Error	0.350	125.04	28	--	--